

**San Francisco City Planning Commission
And San Francisco Redevelopment Agency**

Draft

**SECOND SUPPLEMENT
YERBA BUENA CENTER
ENVIRONMENTAL IMPACT REPORT**

82.35E

Publication Date: May 28, 1982

Public Comment Period: May 28, 1982 through July 6, 1982

Public Hearing Date: July 6, 1982

**Written comments should be sent to the Chief, Planning, Housing and
Programming , San Francisco Redevelopment Agency, 939 Ellis Street, San Francisco, CA 94104**



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S. SUMMARY

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This document is a second supplement to the Yerba Buena Center Final Environmental Impact Report (EE 77.220, State Clearinghouse No. 78011633), hereinafter referred to as YBC FEIR, published and certified by the San Francisco Redevelopment Agency Commission and City Planning Commission on April 25, 1978. The purpose of this second Supplement is to provide environmental information to the public and to decision-makers in connection with the approval of land disposition and development agreements for the Yerba Buena Center Redevelopment Project Area.

The 1978 YBC FEIR analyzed the environmental effects of the then-proposed Moscone Convention Center and alternative development scenarios for the entire Yerba Buena Center Redevelopment Project Area (hereinafter referred to as YBC). On July 21, 1981, a first supplement to the 1978 YBC FEIR was certified. That document, entitled The Yerba Buena Center Environmental Impact Report Supplement (EE 81.27, State Clearinghouse No. 78011633), hereinafter referred to as the First YBC EIR Supplement, further analyzed in more detail potential development on two blocks within YBC, including the site of the current General Services Administration (GSA) Building.

The present document, the Yerba Buena Center Environmental Impact Report Second Supplement, 82.35E, hereinafter called the Second YBC EIR Supplement, updates the environmental analysis contained in the 1978 YBC FEIR and the First YBC EIR Supplement. This second Supplement follows the format and general mode of analysis in the original 1978 YBC FEIR, since it is designed as a supplement and not a new completely separate EIR. Like the 1978 YBC FEIR it analyzes the environmental effects of development throughout YBC, bringing the reader up to date as to changes that have occurred in the YBC vicinity and in proposed intensities and location of development throughout the YBC Redevelopment Project Area. This document has been prepared as a Supplement to the Yerba Buena Center Final EIR (YBC FEIR) (EE 77.220, State Clearinghouse

No. 7801163), which was certified on April 25, 1978. Four alternative development plans and variants on them, and the November 1977 Tentative Proposal were considered for the entire YBC Redevelopment Project Area in the 1978 YBC FEIR.

Although this Second YBC EIR Supplement may be read independently of the previous documents, its analysis parallels that of the First YBC EIR Supplement and the original 1978 YBC FEIR. Much of the description and analysis in these previous documents remains valid and useful. Accordingly, wherever appropriate, this Second YBC EIR Supplement refers to, incorporates and summarizes material from the YBC FEIR and the First YBC EIR Supplement. In addition, the four prototype scenarios, developed as Alternatives A, B, C and D in the 1978 YBC FEIR, and described below, remain extremely useful as alternatives to the Main Program for purposes of environmental comparison. These four prototypes were employed as environmental bench-marks in the First YBC EIR Supplement and are retained herein for comparative purposes as well. Thus, the three documents--the YBC FEIR with its prototype alternatives, the First YBC EIR Supplement, with its more specific analyses of two blocks and this Second YBC EIR Supplement--may be considered together, and will jointly serve governmental decision-makers during their deliberations.

The 1978 YBC FEIR alternatives were selected so as to present a range of potential development alternatives and a range of potential impacts from relatively low density to relatively high density:

Alternative A was based on the then existing Redevelopment Plan for YBC and included a hotel and apparel mart on Central Block 2 (CB-2), a convention center and about 6 million square feet of office space.

Alternative B was based on recommendations of the Mayor's Select Committee on Yerba Buena Center and included an apparel mart but no hotel on Central Block 2 (CB-2), a convention center, and about 3 million square feet of office space.

Alternative C was derived from various public comments and suggestions in the earlier 1973 EIR and 1973 EIS and included a 2-block park on Central Blocks 2 and 3 (CB-2 and CB-3) surrounded by housing, 2.7 million square feet of office space, and no convention center.

Alternative D, the "no action" alternative, was based on revocation of the Redevelopment Plan, and subsequent private development in compliance with existing zoning. This resulted in office and retail on Central Block 1 (CB-1), 6 million square feet of "Downtown Support" uses largely on CB-2 and CB-3, and 4.5 million square feet of office space. It included no convention center.

The environmental analysis in this Second YBC EIR Supplement is based on a Main Program and variants on the Main Program, for the entire Redevelopment Project Area. Development proposals for much of the YBC Redevelopment Project Area are more advanced than in 1978, especially in the Central Blocks. The Central Blocks are currently the subject of ongoing negotiations of the San Francisco Redevelopment Agency with Olympia & York. In portions of the Redevelopment Project Area new buildings have already been constructed, are under construction, or plans have been approved. The George R. Moscone Convention Center has been opened on Central Block 3. Thus, while the 1978 YBC FEIR chose to examine four alternative prototype scenarios for YBC (and several variants) in equal detail choosing no one alternative as "the project," this Second YBC EIR Supplement focuses on one Main Program which incorporates these recent developments. Several variants are included as well, but they refer to variations on individual blocks. The variants have been analyzed in equal detail, but are discussed only where differences in impacts from the Main Program would occur.

Table S-1 below, contains all uses, existing, under construction, and to be constructed, currently proposed under the Main Program for YBC (Figure 8, p. 38, shows the locations of the Main Program land uses). The list shows which uses are existing and to be preserved, which uses have been constructed since completion of the 1978 YBC FEIR, which uses would be in rehabilitated buildings and which uses are under construction; all uses not given one of these descriptions are yet to be constructed.

TABLE S-1: PROPOSED MAIN PROGRAM FOR YBC (gross sq. ft. of floor area unless otherwise noted)

Central Block 1 (CB-1)

- Office Space	500,000 sq. ft.
- Office Space	90,000 sq. ft. (rehabilitated)
- Hotel	2,200 rooms
- Institutional	Church and Rectory
- Retail/Commercial	200,000 sq. ft.
- Housing	500 market-rate dwelling units
- Cultural	10,000 sq. ft.
- Accessory Parking	950 spaces
- Pedestrian Concourse/Plaza	71,000 sq. ft.

Central Block 2 (CB-2)

- Retail/Commercial	90,000 sq. ft.
- Cultural	120,000 sq. ft.
- Amusement/Recreation/ Entertainment	135,000 sq. ft.
- Underground Ballroom and Exhibit Room	100,000 sq. ft.
- Accessory Parking	1,500 spaces
- Pedestrian Concourse/Plaza	99,000 sq. ft.
- Public Park or Plaza	173,400 sq. ft.

Central Block 3 (CB-3)

- Convention Center	650,000 sq. ft. (existing)
- Cultural	10,000 sq. ft.
- Amusement/Recreation/ Entertainment	120,000 sq. ft.
- Retail/Commercial	30,000 sq. ft.
- Public Park or Plaza	82,000 sq. ft.

Eastern Block 1 (EB-1)

- Office Space	593,000 sq. ft.
- Retail/Commercial	60,000 sq. ft.

Eastern Block 2 (EB-2)

- Housing	300 market-rate dwelling units
- Retail/Commercial	10,000 sq. ft.
- Cultural	200,000 sq. ft.
- Office	700,000 sq. ft.
- Accessory Parking	500 spaces

TABLE S-1: PROPOSED MAIN PROGRAM FOR YBC, Continued

Eastern Block 3 (EB-3)

- Office Space	339,000 sq. ft. (under construction)
- Office Space	25,000 sq. ft. (rehab)
- Public Parking	800 spaces
- Housing	200 market-rate dwelling units
- Office Space	833,000 sq. ft. (existing)

Western Block 1 (WB-1)

- Institutional	63,000 sq. ft. (existing)
- Retail/Commercial	5,500 sq. ft. (existing)

Western Block 2 (WB-2)

- Public Parking	296 spaces (existing)
- Office Space	300,000 sq. ft. (under construction)

Western Block 3 (WB-3)

- Housing	388 subsidized dwelling units (existing)
- Housing	70 subsidized dwelling units (under construction)
- Housing	95 subsidized dwelling units
- Office Space	15,500 sq. ft. (existing)
- Retail/Commercial	14,800 sq. ft. (existing)
- Institutional	33,000 sq. ft. (existing)

Southern Block 1 (SB-1)

- Office Space	11,000 sq. ft.
- Light Industrial	25,350 sq. ft. (existing)
- Institutional	23,600 sq. ft. (existing)
- Retail/Commercial	10,000 sq. ft. (existing)
- Retail/Commercial	12,000 sq. ft.

Southern Block 2 (SB-2)

- Office Space	573,500 sq. ft. (existing)
- Office Space	80,000 sq. ft.
- Light Industry	28,100 sq. ft. (existing)
- Housing	147 subsidized dwelling units (existing)
- Housing	320 market-rate dwelling units
- Housing	200 subsidized dwelling units
- Downtown Support	10,500 sq. ft. (existing)
- Public Parking	800 spaces
- Retail/Commercial	35,000 sq. ft. ?

TABLE S-1: PROPOSED MAIN PROGRAM FOR YBC, Continued

Southern Block 3 (SB-3)

- Housing	650 market-rate dwelling units
- Office Space	12,000 sq. ft. (existing)
- Retail/Commercial	29,600 sq. ft. (existing)
- Light Industry	49,200 sq. ft. (existing)

Southern Block 4 (SB-4)

- Institutional	300 students
- Light Industrial	34,650 sq. ft. (existing)

SOURCE: San Francisco Redevelopment Agency

Under the Main Program, Central Block 1 would be the most intensively developed block. The roughly two million total square feet of uses on the block could be placed in one or more towers up to 400 ft. high. The block would contain a glassed galleria connecting plazas at Market and Mission Sts. Central Block 2 would be designed to draw visitors into it and through it to the George Moscone Convention Center on Central Block 3. The 60% of open space required for Central Block 2 (San Francisco Redevelopment Agency, April, 1980, "Request for Qualifications," p. 21) would be devoted to pedestrian plaza(s) and gardens. Amusement, recreation, entertainment and cultural uses would be in buildings framing the open space. The roof of the underground convention center on Central Block 3 would be developed with visitor-oriented uses. These could include restaurants, cafes, night clubs and a cinema center.

The blocks or portions of blocks within YBC located around the Central Blocks on the eastern, southern, and western sides comprise the "peripheral blocks" of YBC. In the Main Program, the undeveloped portions of the Eastern Blocks, located on the east side of Third St., would contain uses similar to those in the Central Blocks. EB-1, -2 and -3 would have a combination of office space, market-rate housing, retail commercial uses (shops and stores) and cultural space. The 200,000 sq. ft. of cultural space planned for EB-2 could be a major museum.

The western edge of YBC would be bounded primarily by existing buildings whose present uses would be retained. None of the western blocks contain unreviewed uses. WB-1, containing the Downtown Community College Center, is fully developed. WB-2 contains an existing parking garage and the Yerba Buena West office building. WB-3 contains subsidized housing for the elderly: the Clementina Towers (276 units) and Woolf House (112 units).

In the southern blocks (SB-1, -2, -3 and -4), a combination of light industrial uses, office space, neighborhood-serving retail commercial services, housing (both subsidized and market-rate), and a private high school would be provided.

Table S-2 shows total square footages for each use under the Main Program in relation to what was considered for each use under the YBC FEIR alternatives. A comparison of the total square footages under each YBC FEIR alternative and the Main Program shows that the Main Program differs from the alternatives primarily in cultural uses, hotel rooms, market-rate dwelling units, downtown support uses and light industrial uses.

Variants are considered for four YBC blocks (see Section IV. Project Description, p. 25). In this Supplement each variant is discussed separately. The effects of each variant are compared with those of the Main Program uses for that block, and any differences in impact are discussed. Table S-3 shows these variants in comparison with the Main Program uses for the respective blocks.

TABLE S-2: COMPARATIVE USES AND FLOOR AREA OF YBC FEIR ALTERNATIVES AND MAIN PROGRAM

Block	Land Uses	1988 YBC FEIR Alternatives				1988
		Alternative A Max. Floor Space (Sq. Ft.)*	Alternative B Max. Floor Space (Sq. Ft.)*	Alternative C Max. Floor Space (Sq. Ft.)*	Alternative D Max. Floor Space (Sq. Ft.)*	Proposed Main Program Max. Floor Space (Sq. Ft.)*
TOTAL:	Commercial Entertainment	400,000	303,000			255,000
	Convention Facility	454,000***	454,000***			650,000
	Cultural					340,000
	Downtown Support Service	99,000	99,000	99,000	6,434,025	10,500
	Exhibit/Ballroom Space					100,000
	Hotel Rooms	700 rooms				2,200 rooms
	Institutional	136,600	136,600	136,600	136,600	119,600 and 300 students
	Light Industry	1,214,750	480,300	496,900	1,688,600	137,300
	Market-Rate Dwelling Units (DU)	50 DUs	650 DUs	1,000 DUs		1,970 DUs
	Office	7,753,100	4,171,700	2,644,000	4,522,000	4,072,000
	Park (Public) or Plaza			908,000		255,400
	Pedestrian Concourse or Plaza	163,500	81,000	81,000		170,000
	Accessory Parking	1,171 spaces	491 spaces	491 spaces	491 spaces	3,750 spaces
	Public Parking	1,056 spaces	1,546 spaces	296 spaces	296 spaces	1,096 spaces
	Retail Commercial	768,500	432,500	290,600	428,475	496,900
	Subsidized Dwelling Units****	888 DUs	1,188 DUs	1,188 DUs	888 DUs	900 DUs

*impossible
unconceived*

* In sq. ft. unless otherwise noted
 ** First YBC EIR Supplement considered CB-1 and SB-4 only.
 *** Convention Center block land area only; the building area of the convention center is greater because it includes a mezzanine level.
 **** All of the four YBC FEIR Alternatives erroneously referred to 278 dwelling units as existing on SB-1. The portion of the Silverview Apartments that is on SB-1 within YBC actually contains meeting facilities and not dwelling units.
 These units have not been shown in this Table and are not included in calculations for the Main Program; they have been subtracted out of all comparative calculations for the YBC FEIR alternatives.

NOTE: Alternatives C and D do not include the George R. Moscone Convention Center, which has been built since these alternatives were conceived. Should either of these alternatives actually be built, they would include the convention center.

TABLE S-3: VARIANTS TO THE PROPOSED MAIN PROGRAM FOR YBC (gross sq. ft. of floor area unless otherwise noted)

<u>Use</u>	<u>Variant</u>	<u>Main Program (for comparison)</u>
Variant A: Reduced-Housing/Increased-Office-and-Retail Variant for CB-1		
Office Space	*900,000 sq. ft.	500,000 sq. ft.
Office Space	90,000 sq. ft. (rehab)	90,000 sq. ft.
Hotel	2,200 rooms	2,200 rooms
Retail/Commercial	*290,000 sq. ft.	200,000 sq. ft.
Housing	*200 dwelling units	500 dwelling units
Institutional	Church & Rectory	Church & Rectory
Cultural	10,000 sq. ft.	10,000 sq. ft.
Accessory Parking	950 spaces	950 spaces
Pedestrian Conc./Plaza	71,000 sq. ft.	71,000 sq. ft.
Variant B: No-Housing Variant for CB-1		
Office Space	500,000 sq. ft.	500,000 sq. ft.
Office Space	90,000 sq. ft. (rehab)	90,000 sq. ft.
Hotel	2,200 rooms	2,200 rooms
Retail/Commercial	200,000 sq. ft.	200,000 sq. ft.
Housing	*None	500 dwelling units
Institutional	Church & Rectory	Church & Rectory
Cultural	10,000 sq. ft.	10,000 sq. ft.
Accessory Parking	950 spaces	950 spaces
Pedestrian Conc./Plaza	71,000 sq. ft.	71,000 sq. ft.
Variant C: Housing Variant for CB-2		
Housing	*300 dwelling units	None
Retail/Commercial	90,000 sq. ft.	90,000 sq. ft.
Cultural	120,000 sq. ft.	120,000 sq. ft.
Underground Ballroom and Exhibit Room	100,000 sq. ft.	100,000 sq. ft.
Amusement/Recreation/ Entertainment	135,000 sq. ft.	135,000 sq. ft.
Accessory Parking	1,500 spaces	1,500 spaces
Pedestrian Conc./Plaza	99,000 sq. ft.	99,000 sq. ft.
Public Park or Plaza	173,400 sq. ft.	173,400 sq. ft.

TABLE S-3: VARIANTS TO THE PROPOSED MAIN PROGRAM FOR YBC (gross sq. ft. of floor area unless otherwise noted) (Continued)

<u>Use</u>	<u>Variant</u>	<u>Main Program (for comparison)</u>
Variant D: Increased-Housing/Reduced-Office Variant for EB-2		
Housing	*700 dwelling units	300 dwelling units
Retail/Commercial	10,000 sq. ft.	10,000 sq. ft.
Cultural	200,000 sq. ft.	200,000 sq. ft.
Office	*300,000 sq. ft.	700,000 sq. ft.
Accessory Parking	500 spaces	500 spaces

* Change from Main Program

SOURCE: San Francisco Redevelopment Agency

Environmental Effects of the Main Program

The Main Program would provide more hotel rooms, cultural uses and market-rate dwelling units than would any of the YBC FEIR alternatives. It would also have fewer downtown support uses and light industrial uses than any of the YBC FEIR alternatives. All other land uses proposed would be within the ranges of those proposed under the YBC FEIR alternatives. The increased total housing units and visitor-oriented uses in the Main Program would make YBC a daytime and nighttime activity center. The residential units would create a demand for neighborhood support services. The South of Market area currently has few of these services.

The new residents, visitors and conventioners in YBC would have demands for retail-commercial services which could induce some merchants in the vicinity of YBC to offer tourist-serving retail goods and services or goods and services aimed at the new residents. In addition, provision in YBC of market-rate dwellings and housing for the elderly (particularly along YBC's western edge), as well as the provision of open space, recreational and cultural amenities, could make areas in the vicinity of YBC attractive to

potential homebuyers. Existing low-income residents living west of YBC (between Fifth and Seventh Sts.), who may not be able to compete in these residential or retail-commercial markets, could be displaced. Those most likely to be affected are Filipino families.

The visual effects of the Main Program would vary within YBC. CB-1 would take on more of an "urban" character than it would under any of the YBC FEIR alternatives, because more total square feet of uses are proposed. One or more high-rise structures of up to 400 ft. would occur on the block, but the rehabilitated historic buildings and the pedestrian plaza would tend to preserve a pedestrian scale. CB-2 would visually connect CB-1 and CB-3, the convention center block. CB-2, with 60% of open space and pedestrian plaza, would invite visitors into it and through it to CB-3. CB-3, with 40% open space, would have more structures on the convention center's roof under the Main Program than under any of the YBC FEIR alternatives. The southern and western blocks would have predominantly low- (under four stories) and medium- (four to six stories) rise buildings, with some taller towers. In the southern blocks, towers would be no more than 130 ft. tall, or about ten stories. In the western blocks towers could be up to 340 ft. tall, or about 26 stories. The eastern blocks would be likely to have more high-rise (over six stories) buildings than the southern or western blocks. Building heights on EB-3 could range up to 320 ft. (about 25 stories), and up to 500 ft. (about 38 stories) on EB-1 and EB-2.

The ratio of market-rate to subsidized housing under the Main Program would be 2:1, higher than for any of the YBC FEIR alternatives. The population in YBC under the Main Program would be of mixed socioeconomic groups, although a higher proportion of middle- and upper-income residents would occur in the YBC area than under the YBC FEIR alternatives.

Development in YBC under the Main Program or any of the YBC FEIR alternatives would increase the attractiveness of the area immediately west of YBC for housing, and could contribute to the immigration of social groups more affluent than those there now. Persons moving into the area are might be willing to pay more for housing and retail-commercial services than current

residents would be able to afford. Current residents, primarily Filipino families, could be displaced. The elderly residents nearest YBC live in subsidized apartment complexes, and so would be largely insulated from increasing housing prices. Based on current trends, the Sixth St. "Skid Row" area would be expected to be resistant to land value speculation and new residential development.

The Main Program would provide about 25,000 new permanent jobs in YBC. This would be within the range of jobs provided by the YBC FEIR alternatives: 15,600 jobs (Alternative C) to 44,800 jobs (Alternative D). None of the variants would affect the jobs provided under the Main Program by more than 7%. The Main Program may have enough market-rate housing to meet the demand of its office-workers; market-rate housing to be provided is within the range of demand projected by the estimating method.

The Main Program would demand more water and generate more wastewater than would any of the YBC FEIR alternatives, primarily because of its greater number of hotel rooms and dwelling units. The additional wastewater flows would contribute to overflows into the Bay until the completion of the City's wastewater management system. The Main Program would generate more demand for energy than would Alternative C but less than B, A and D. Pacific Gas and Electric Company would be able to adequately serve these needs. San Francisco's solid waste disposal contract with the Mountain View landfill site expires in October 1983. The City is presently negotiating with other landfill sites to accept San Francisco's solid waste on an interim basis until a solid waste program is implemented in late 1986. Solid waste from the Main Program and cumulative development in San Francisco are not expected to present disposal problems upon completion of this program. A 24-hour patrol car was added to the YBC area in December, 1981, to patrol the George Moscone Convention Center. This car would be able to patrol the build-out of YBC, as well. The Main Program would generate a greater demand for classroom space, parks and medical facilities than would any of the YBC FEIR alternatives; these demands could be met by existing and currently proposed facilities.

The Main Program would generate roughly the same amount of total travel as Alternative A, the YBC FEIR alternative generating the highest number of person trips. Main Program pedestrian travel would cause "crowded" and "congested" conditions on sidewalks near Market St. during the evening peak hour. In 1988, the projected build-out year for YBC, most Muni lines would experience "jammed" conditions before the addition of Main Program riders. Main Program riders (not including those from the convention center) would comprise 19% of the cumulative growth in peak-hour outbound transit ridership between 1982 and 1988 (cumulative growth caused by projects under construction or proposed for downtown San Francisco; a list of projects included is in Appendix C, p. 257). Main Program vehicular traffic would, at the peak-hour, degrade levels of service (increase congestion) over 1988 cumulative conditions without the project at five out of seven intersections within YBC. A localized deficit of freight loading spaces would occur on five blocks under the Main Program. Tour / charter buses loading and unloading at CB-1 could cause congestion nearby, unless loading is removed from the streets.

Placement of high-rise building towers anywhere along the Fourth St. side of CB-1 would shade open plazas on the block at least some of the time. Traffic noise levels in the YBC area are, and would continue to be, incompatible with some uses, particularly housing, without the inclusion of some noise insulation features in the housing design. Residents of Woolf House (housing for the elderly) could be affected by noise from amplified performances in the outdoor performance areas (possibly including an amphitheatre) on CB-2, if it were included in the project. Since it would be difficult to retrofit Woolf House with needed noise insulation features, placement and design of the amphitheatre must be given consideration. Housing on CB-2 under the Housing Variant for CB-2 would require noise insulation features in excess of those to reduce traffic noise; this would be necessary to reduce noise levels from activities and musical performances on CB-2.

The Main Program is likely to require more excavation and dewatering during construction than would any of the YBC FEIR alternatives. This would be due to the underground parking garage and exhibit / ballroom proposed for CB-2,

uses not included in any of the YBC FEIR alternatives. Because the Main Program would have more residents than would any of the YBC FEIR alternatives, a greater population in YBC would be exposed to possible seismic hazards there.

Environmental Effects of the Variants

The environmental effects of the variants are discussed below only where differences in impacts from the Main Program would occur.

Implementing Variant A, the Reduced-Housing / Increased-Office-and-Retail Variant for CB-1, would have the following effects on the environmental impacts of the Main Program. Increased office and retail space would bring additional employees and shoppers to CB-1, increasing demand for sidewalk spaces, food services, and open spaces. The variant would include a department store; this would mean that less space would be available for small retailers on the block. The variant could serve to reinforce the Retail District on the south side of Market St. by providing a major department store one block east of the Emporium. The height and bulk of buildings on CB-1 would increase over that for the Main Program. This would create a visual character of greater building density on this block. Some 1,780 new permanent jobs would be added to the block. The number of total daily person trips generated by uses on CB-1 under this variant would be increased by approximately 20% over those generated by the Main Program uses for CB-1. Housing demand would be increased by some 170 to 340 units while supply is reduced by 300 units, thereby increasing the possible unmet housing demand. The energy demand of CB-1 would be increased by about 24%.

Implementing Variant B, the No-Housing Variant for CB-1, would have the following effects on the environmental impacts of the Main Program. There would be a decrease in visual density on CB-1 due to the elimination of housing on the block. Retail commercial space is likely to be oriented more towards visitors and employees than under the Main Program. Housing would be reduced by 500 units while housing demand from YBC office workers would remain the same, thereby increasing the possible unmet housing demand. Energy demand for CB-1 would be reduced by about 10%.

Implementing Variant C, the Housing Variant for CB-2, would alter the environmental impacts of the Main Program in the following ways. The 300 housing units could increase possible land use conflicts between residents and visitors on the block. When major events occur on CB-2, such as concerts or art exhibits, or conventions are held at the George R. Moscone Convention Center on CB-3, large crowds and long lines may result on CB-2. CB-2 residents might feel that they have little privacy or neighborhood community. The housing on CB-2 under this variant would relate to the housing proposed on CB-1 and EB-2 under the Main Program and would contribute to a market-rate housing community in YBC, particularly if the housing developments were located near each other. Should housing be laid out on CB-2 so as to appear to narrowly enclose "gardens" uses or other public spaces, the residential uses might appear to exert a territorial claim on this open space. Probable greater building heights could lead to a greater sense of enclosure of the proposed open space in CB-2. On-site housing would be increased, thereby reducing unmet housing demand for YBC's office workers. Housing on this block would introduce a noise-sensitive use where none existed before; crowd and activity noise on CB-2 could disturb residents. The energy demand for CB-2 would be increased by about 11%.

Implementing Variant D, the Increased-Housing / Reduced-Office Variant for EB-2, would change the environmental impacts of the Main Program in the following ways. Increasing housing on the block could aggravate conditions of incompatibility between residents, office workers and visitors on the block. This housing could contribute to a sense of security and neighborhood in a market-rate housing community in YBC. Some 1,600 jobs would be eliminated due to the reduction in office space. Housing would be increased by 400 units, thereby reducing or eliminating unmet office-worker housing demand in YBC. This variant would reduce EB-2's energy demand by 20%.

Mitigation Measures

Applicable mitigation measures included in the YBC FEIR (see pp. 447-510) and in the First YBC EIR Supplement (see pp. 77-85 and pp. 121-125) would be included as part of the project. Suggested additional mitigation measures are listed below. The suggested mitigation measures would be acted upon by the

Redevelopment Agency Commission just prior to action by the Commission on each proposed land disposition and development agreement, and could be made conditions of approval on each agreement.

The Redevelopment Agency would evaluate proposed building designs in light of consistency with the visual character of buildings being preserved in YBC and with buildings neighboring YBC. Should housing be constructed on CB-2, the Redevelopment Agency would consider requiring the Central Blocks developer to design both housing and adjacent open space to eliminate any apparent territorial claim or "privateness" the housing may exert on public open space on CB-2. The Redevelopment Agency would consider requiring developers to provide space for resident-serving retail-commercial uses near all housing sites in YBC. The Redevelopment Agency would require placement of sidewalk lighting so as not to interfere with the vision of passing motorists and to avoid creating reflective glare on adjacent buildings. The Redevelopment Agency would consider requiring the developer of the Central Blocks to provide litter pick-up for areas within and adjacent to Central Blocks to maintain an attractive appearance within YBC. The Redevelopment Agency would consider incorporating design measures to mitigate possible visual effects of continuous adjacent tall buildings along the perimeter of CB-1 at Fourth, Market and Third Sts.

Some measures could be taken to preserve low- and moderate-income housing in the South of Market area west of YBC. These include the following:

The SPUR study (San Francisco Planning and Urban Research (SPUR), June, 1981, South of Market: A Plan for San Francisco's Last Frontier) suggests buying out residential hotels along Sixth St., rehabilitating them, and permanently dedicating them for low- and moderate-income housing. This action could be taken by a public non-profit corporation. In addition, while the degree of mitigation attendant such action is speculative, consideration could be given to expanding the scope of City and County ordinances and programs designed to protect and expand existing low- and moderate-income housing. Expansion of existing ordinances may increase the protection of low- and moderate-income housing west of YBC (and throughout the City) from some possible effects of potential real estate speculation. It could also place a burden on property

owners who find it difficult to meet their costs, thereby reducing the ability to maintain the quality and safety of such housing. Amending City ordinances would require action by the Board of Supervisors. The City could rezone the area west of YBC (between Fifth and Seventh Sts.) from C-3-R (Downtown Retail), C-3-G (Downtown General Commercial), C-3-S (Downtown Support and M-1 (Light Industrial) to an R (Residential) district would preserve housing in the area. Amending the City Zoning Map would require action by the City Planning Commission, to approve and recommend the amendment to the Board of Supervisors, and by the Board of Supervisors, to adopt all or part of the recommended change.

The Redevelopment Agency would consider requiring that new housing on SB-2 be constructed so as to preserve views from the existing TODCO / Los Caballeros Dimasalang House toward CB-3 and the San Francisco skyline to the extent possible and feasible.

Shadow analyses would be performed as appropriate by developers. Necessary modifications in building siting and shape identified in the study would be implemented to reduce shading effects on proposed open areas wherever possible and feasible.

Vehicular access from off-street parking garages onto Mission and Market Sts. would be limited or excluded. If "at grade" pedestrian crossings are developed on Mission and Howard Sts. (between Third and Fourth Sts.), the City could install appropriate traffic control devices to reduce the potential for accidents involving pedestrians and delays associated with pedestrian-vehicle conflicts. The Redevelopment Agency would consider requiring that the developer provide pedestrian bridges to reduce these hazards. The Redevelopment Agency would require developers to coordinate construction activities in YBC to minimize disruption to traffic on local streets.

The Redevelopment Agency would consider requiring that off-street loading spaces be provided to meet actual demand. In recognition of the need for expanded transportation services to meet the peak demand generated by cumulative commercial development in the downtown area, the Redevelopment

Agency would consider requiring developers to contribute funds for maintaining and augmenting transportation service, in an amount proportionate to the demand created by the project, as provided by Board of Supervisors Ordinance Number 224-81 or any subsequent equitable funding mechanism developed by the City.

Housing on CB-2, if any, would be designed with sufficient noise insulation to reduce peak activity noise levels on CB-2 to acceptable interior noise levels. Should an amphitheatre or other outdoor performance area be provided on CB-2, the Redevelopment Agency would require the Central Blocks developer to perform an acoustical analysis to develop a design and placement which would have minimal, if any, noise effects on Woolf House residents and residents of all other housing proposed for or existing in YBC. Necessary amphitheatre or outdoor performance area design modifications would be implemented to minimize effects of amplified sound on Woolf House and other residents.

The Redevelopment Agency would develop criteria for use in the design of each development to minimize the avoidable, unnecessary and/or wasteful use of nonrenewable energy and to encourage the use of renewable energy. Decorative water fountains would be designed to recirculate water to reduce water consumption.

The Redevelopment Agency would consider requiring each developer of a high-rise structure to prepare an evacuation and emergency response plan in consultation with Mayor's Office of Emergency Services, to insure coordination between the City's emergency planning activities and the project's plans and to provide for building occupants in the event of an emergency.

I. BACKGROUND

I. BACKGROUND

A. INTRODUCTION

This document is a second supplement to the Yerba Buena Center Final Environmental Impact Report, EE 77.220 (hereinafter referred to as YBC FEIR), which was certified by the San Francisco Redevelopment Agency Commission and City Planning Commission on April 25, 1978. The purpose of this second Supplement is to provide environmental information to the public and to decision-makers in connection with the approval of land disposition and development agreements for the Yerba Buena Center Redevelopment Project Area, including such an agreement anticipated in 1982 for the central portion.

The 1978 YBC FEIR analyzed the environmental effects of the then-proposed Moscone Convention Center and alternative development scenarios for the entire Yerba Buena Center Redevelopment Project Area (hereinafter referred to as YBC). On July 21, 1981, a first supplement to the 1978 YBC FEIR was certified. That document, entitled The Yerba Buena Center Environmental Impact Report Supplement, EE 81.27 (hereinafter referred to as the First YBC EIR Supplement), further analyzed in more detail potential development on two blocks within YBC, including the site of the current General Services Administration (GSA) Building.

The present document, the Yerba Buena Center Environmental Impact Report Second Supplement, 82.35E, hereinafter called the Second YBC EIR Supplement, updates the environmental analysis contained in the 1978 YBC FEIR and the First YBC EIR Supplement. This second Supplement follows the format and general mode of analysis in the original 1978 YBC FEIR, since it is designed as a supplement and not a new completely separate EIR. Like the 1978 YBC FEIR it analyzes the environmental effects of development throughout YBC, bringing the reader up to date as to changes that have occurred in the YBC vicinity and in proposed intensities and location of development throughout the YBC Redevelopment Project Area. The central portion of YBC is currently the

subject of exclusive negotiations between the Redevelopment Agency staff and Olympia and York Equities Corporation/Marriott Corporation/Beverly Willis, commonly known and referred to in this document simply as "Olympia and York."

Although this Second YBC EIR Supplement may be read independently of the previous documents, its analysis parallels that of the First YBC EIR Supplement and the original 1978 YBC FEIR. Much of the description and analysis in these previous documents remains valid and useful. Accordingly, wherever appropriate, this Second YBC EIR Supplement refers to, incorporates and summarizes material from the YBC FEIR and the First YBC EIR Supplement. In addition, the four prototype scenarios developed as Alternatives A, B, C and D (described on pp. 25 - 31 in this report) in the 1978 YBC FEIR remain extremely useful as alternatives to the Main Program for purposes of environmental comparison. These four prototypes were employed as environmental bench-marks in the First YBC EIR Supplement and are retained herein for comparative purposes as well. Thus, the three documents--the YBC FEIR with its prototype alternatives, the First YBC EIR Supplement, with its more specific analyses of two blocks and this Second YBC EIR Supplement--may be considered together, and will jointly serve governmental decision-makers during their deliberations.

B. BRIEF HISTORY OF THE YBC REDEVELOPMENT PROJECT

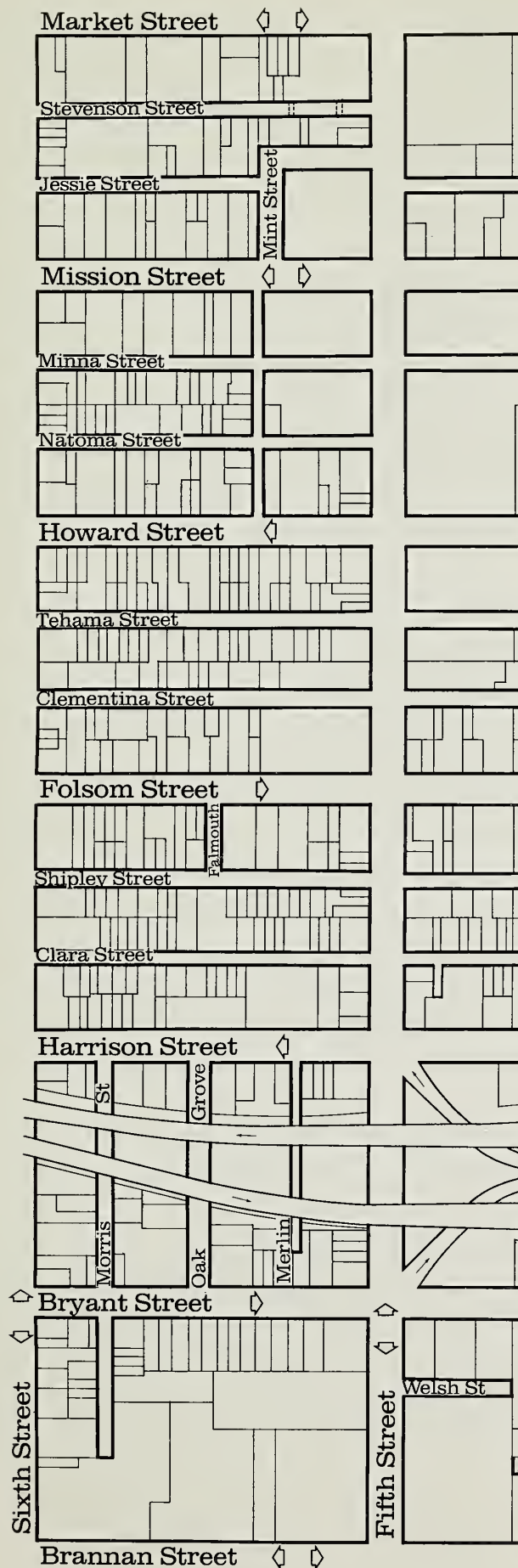
The California Community Redevelopment Law was adopted in 1945 as a basis for fostering new building and development programs after World War II in urban areas identified as blighted under the terms of the law. The San Francisco Board of Supervisors established a Redevelopment Agency in 1948. In 1953 the Board of Supervisors designated 19 blocks as redevelopment area "D" in the South-of-Market District. After five years of study and debate, this decision was reversed, and in 1958 the area was dedesignated. However, in 1961, this decision was in turn reversed, and area D was redesignated with different boundaries. The first official Redevelopment Plan was adopted by the Board of Supervisors on April 25, 1966. When planning and implementation of the plans for YBC reached the point of property acquisition and relocation of businesses and residences, several suits were filed in local and federal courts. Some involved prolonged litigation and resulted in substantial delays

to the project. They resulted also in project changes that represented expressed community interests; these included subsidized housing for the elderly, a portion of which has been completed. The history of litigation and these various redevelopment plans is discussed in more detail in the YBC FEIR, pp. 3 - 11.

On November 2, 1976, the voters of the City and County of San Francisco approved a declaration of policy that "the City construct a convention exhibit hall at Yerba Buena Center (YBC) using a 4% hotel room tax to finance lease revenue bonds." Several changes in permitted land use and density in the redevelopment area were incorporated into a YBC Redevelopment Plan Amendment approved by the Board of Supervisors and the Redevelopment Agency Commission on August 13, 1979. The George R. Moscone Center has since been constructed and was opened on December 10, 1981.

Shortly after approval of the Amendment to the Redevelopment Plan, the Redevelopment Agency sponsored an intensive competition to select the team most capable of developing the YBC Central Blocks. In April 1980, the Redevelopment Agency issued a "Request for Qualifications" (RFQ) for the 22-acre area of YBC known as Central Blocks 1, 2 and 3 (Assessor's Blocks 3706, 3723 and 3734 respectively; see Figure 1, p. 4). The RFQ contained guidelines for a general land use program derived from the Redevelopment Plan as approved by the Redevelopment Agency and the Board of Supervisors of the City and County. The Agency received ten responses to the RFQ and, after careful evaluation, selected on November 20, 1980 the team of Olympia and York Equities Corporation/Marriott Corporation/Beverly Willis (Olympia and York) for exclusive negotiations. Eastern Block 2 was also added to the area under exclusive negotiations with Olympia and York by action of the Redevelopment Agency Commission on September 1, 1981.

Shortly after the selection of Olympia & York as the potential development team for the Central Blocks of YBC, the Redevelopment Agency and Olympia & York began a period of exclusive negotiations, still underway, leading to a proposed land disposition and development agreement. This land disposition and development agreement would contain the terms and conditions under which



YERBA BUENA CENTER SECOND SUPPLEMENT

LEGEND

Assessor's Block Numbers

CB-1	Central Block One Assessor's Block 3706
CB-2	Central Block Two Assessor's Block 3723
CB-3	Central Block Three Assessor's Block 3734
EB-1	Eastern Block One Assessor's Block 3707
EB-2	Eastern Block Two Assessor's Block 3722
EB-3	Eastern Block Three Assessor's Block 3735
SB-1	Southern Block One Assessor's Block 3752
SB-2	Southern Block Two Assessor's Block 3751
SB-3	Southern Block Three Assessor's Block 3750
SB-4	Southern Block Four Assessor's Block 3763
WB-1	Western Block One Assessor's Block 3705
WB-2	Western Block Two Assessor's Block 3724
WB-3	Western Block Three Assessor's Block 3733

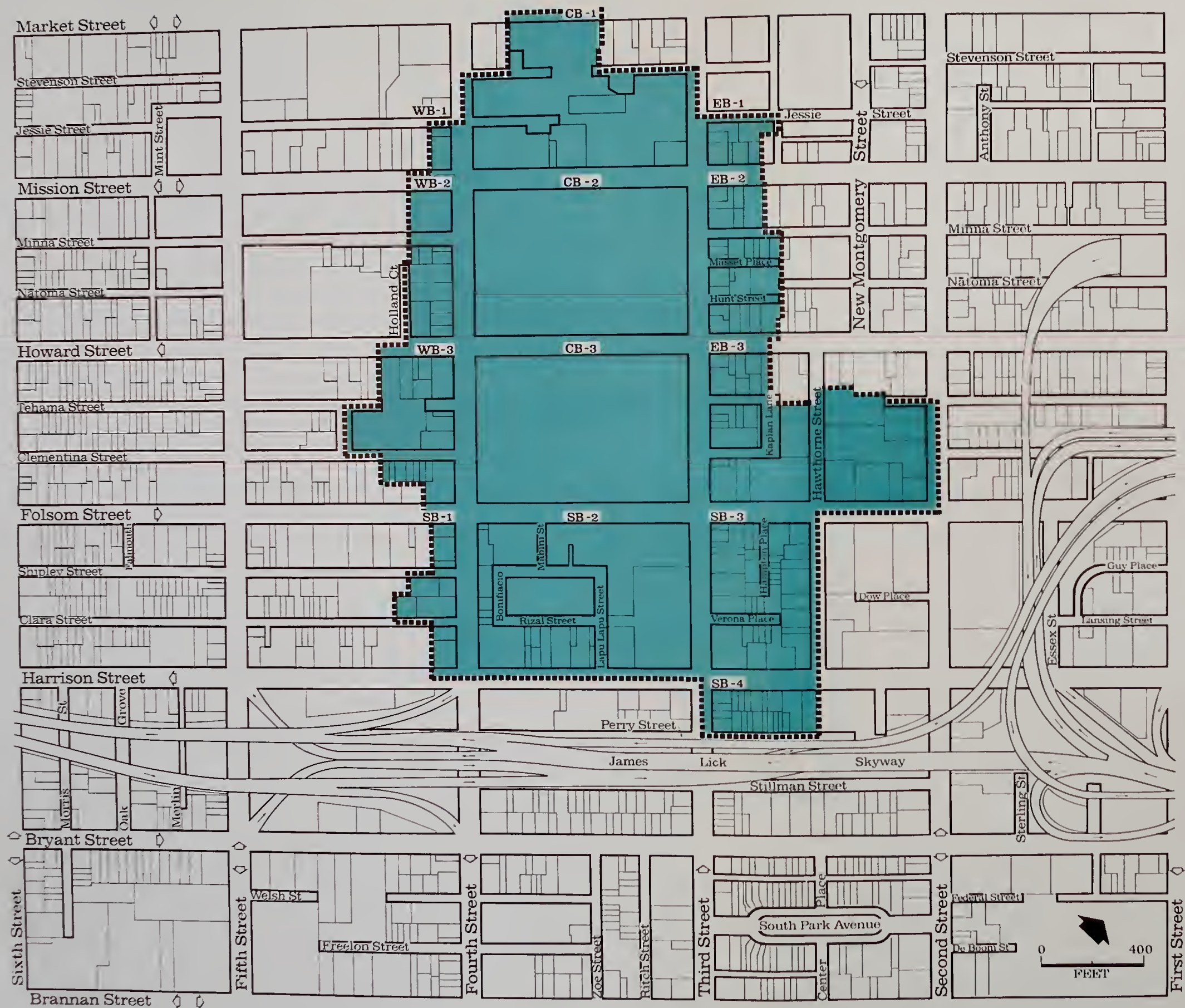
■■■■■ Redevelopment Area Boundary

FIGURE 1:

Assessor's Block Numbers
Yerba Buena Center

SOURCE:

Environmental Science Associates, Inc., using information
from the YBC FEIR



YERBA BUENA CENTER SECOND SUPPLEMENT

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WB-1	Western Block One Assessor's Block 3705
WB-2	Western Block Two Assessor's Block 3724
WB-3	Western Block Three Assessor's Block 3733

..... Redevelopment Area Boundary

FIGURE 1:
Assessor's Block Numbers
Yerba Buena Center

SOURCE:
Environmental Science Associates, Inc., using information
from the YBC FCB

YBC land would be either sold and/or leased to Olympia & York. The negotiation process embraces the economics, design and precise disposition terms of the development. To facilitate negotiations, Olympia & York established a local office and assembled a negotiating team, necessary staff, and hired outside consultants to advise it.

During the negotiations, it became apparent to Redevelopment Agency staff and Olympia & York that the negotiating teams needed guidance from the Redevelopment Agency Commission in establishing parameters for: (1) the general design principles applicable to Central Block 1; (2) general design principles applicable to urban design of Central Blocks 2 and 3; and (3) whether housing should be built in addition to other permitted uses on Central Block 2.

Agency staff, therefore, requested Olympia & York to develop prototypical design concepts that would illustrate: (1) three possible configurations for Central Block 1; (2) three approaches to urban design for Central Blocks 2 and 3; and (3) a variation for each of the three design concepts for Central Block 2 that would provide for housing. These design concepts were formally presented to the Redevelopment Agency Commission by Olympia & York at a public meeting on September 10, 1981. Public input was sought through various means. Concept sketches, models, and other items of public information were placed at various locations in the City for public inspection during a three week period. Public comment was encouraged at these exhibits and media attention resulted. A number of public presentations were also conducted.

The three Central Block 1 entryway design concepts, called the Forecourt Tower Variant, the Portal Tower Variant and the Plaza Tower Variant, had some elements in common. All three had a court or plaza on Market St., aligned on the block to meet the end of Grant Ave. (across Market St.); the court was intended to act as pedestrian continuation of Grant Ave. into YBC. The court fed into a covered pedestrian plaza through Central Block 1 to the other Central Blocks to the south. The court and the pedestrian plaza were flanked on either side by two high-rise building towers. The east tower fronts

Market St.; the west tower was set back midway into Cenral Block 1 and behind the Humboldt Bank Building. Both towers in all three design concepts were "stepped back" several times from podium-like bases.

The design variants differed primarily in the shape of the Market St. plaza and the two towers. The Forecourt Tower Variant plaza suggested both a rectangle and a triangle: the right side was rectangular and the left side angled in from Market St. to the pedestrian concourse entrance. The towers themselves were roughly square with "cut off" corners. The Portal Tower Variant contained a semi-circular plaza, and towers on a cross-like plan. The Plaza Tower Variant had a square plaza and rectilinear towers that were broken frequently into horizontal and vertical setbacks; this gave the towers a "faceted" appearance. The Plaza scheme had the largest open area of the variants, as well as the greatest distance between the two towers.

The three approaches to the design of Central Block 2 and Central Block 3 were called the Terraces, the Square and the Esplanade. All three proposed to treat the required 60% open space on Central Block 2 and 40% open space (required in the RFQ) on Central Block 3 as a series of "gardens," each with a theme. Themes suggested included a contemplative Garden, a Small Event Garden (outdoor performances), a Children's Garden and an Ice Garden (containing an ice skating rink). The 40% of land area on Central Block 2 and 60% on Central Block 3 to be covered with buildings were to contain retail/commercial uses, cultural uses, and amusement/recreation/entertainment uses (see IV. Project Description p. 25). The Terraces design was based on a set of terraced roofs that fanned out from a roughly three- to five-story semi-circular building, fronting on Mission St. Each roof level (except that of the Mission St. building) was to be landscaped and contain some of the "garden" uses. The terraces were to step down to ground level approximately midway through the block from Mission St. The design of the Square relied on building placement to break Central Block 2 into several distinct rectangular

spaces, each containing one of the "gardens." The Esplanade's focal design element was a broad open plaza which continued uninterrupted by buildings, from St. Patrick's Church on Central Block 1 to the George R. Moscone Convention Center on Central Block 3. The "gardens" were in rectangular areas accessible from the plaza through openings between the buildings fronting the plaza.

At its meeting of October 6, 1981 the Redevelopment Agency Commission received comments from the public. The Commission had previously received recommendations from Agency staff, the Director's Advisory Group (a group of citizens advising the Agency Executive Director on an ongoing basis), and Agency consultants through Agency staff. At that meeting the Commission indicated its preference for the design principles embodied in the "Plaza Tower Variant" prototype for Central Block 1. As to Central Blocks 2 and 3, the Commission further indicated its preference for the design principles embodied in the prototype entitled "The Esplanade." Finally, the Commission indicated it would reserve any expression of preference either in favor of or against housing on Central Block 2. The Commission stated to the staff that its indication of preference for the Plaza Tower Variant for Central Block 1 and the Esplanade design for Central Blocks 2 and 3, which would then undergo refinement through the ongoing negotiations, was meant as general guidance to Olympia & York and Agency staff and was not intended to be an approval of a specific design concept. The Commission further indicated that approval of any specific program would depend on further review and consideration of all pertinent data, including supplemental environmental data contained in this document.

Negotiations between the Redevelopment Agency staff and the Olympia & York negotiating team are expected to culminate in 1982 in the approval of a proposed land disposition and development agreement. The proposed agreement will then be the subject of a further public hearing and comment, after which the Redevelopment Agency Commission will consider the agreement for approval. Similarly, the Board of Supervisors will consider the agreement for approval as it relates to Central Block 3 (the convention center block). The proposed

agreement will not be approved until environmental review on the uses under consideration has been completed by the City Planning Commission, the Redevelopment Agency Commission and the public, using this Second YBC EIR Supplement together with the First YBC EIR Supplement and the 1978 YBC FEIR.

C. ENVIRONMENTAL DOCUMENTATION

Generally speaking, the environmental documentation accompanying the administrative process described above has proceeded from the general to the specific. In 1978, the YBC FEIR evaluated four prototypical alternatives to YBC ranging from low density to high density. The First YBC EIR Supplement investigated in more detail specific proposals for two blocks of the YBC area. This current Supplement updates both of these previous documents with special emphasis on the Central Blocks of YBC which are the subject of ongoing negotiations between Olympia & York and the Redevelopment Agency. Each of these previous YBC environmental documents is described below.

Early environmental documents issued in 1973.

An early redevelopment program for the YBC area was the subject of an EIR issued in May 1973 with an addendum published in July 1973, and a federal Environmental Impact Statement issued in October 1974. These earlier documents are no longer of significance since the redevelopment program was substantially changed and these environmental documents were superseded by the documents described below. The earlier EIR and EIS are not referred to further in this document, except as specifically identified.

The 1978 Yerba Buena Center Final Environmental Impact Report (EE 77.220).

This document, referred to as the YBC FEIR, was jointly prepared by the San Francisco Department of City Planning and the San Francisco Redevelopment Agency. It evaluated and discussed four alternative development scenarios for the entire YBC Redevelopment Project Area and possible variants, in as close to equal detail as appropriate.

The alternatives were selected so as to present a range of potential development alternatives from relatively low density to relatively high density, with a corresponding range of potential impacts:

Alternative A was based on the then existing Redevelopment Plan for YBC and included a hotel and apparel mart on Central Block 2 (CB-2), a convention center and about 6 million square feet of office space.

Alternative B was based on recommendations of the Mayor's Select Committee on Yerba Buena Center and included an apparel mart but no hotel on Central Block 2 (CB-2), a convention center, and about 3 million square feet of office space.

Alternative C was derived from various public comments and suggestions in the earlier 1973 EIR and EIS a 2-block park on Central Blocks 2 and 3 (CB-2 and CB-3) surrounded by housing, 2.7 million square feet of office space, and no convention center.

Alternative D, the "no action" alternative, was based on revocation of the Redevelopment Plan, and subsequent private development in compliance with existing zoning. This resulted in office and retail on Central Block 1 (CB-1), 6 million square feet of "Downtown Support" uses largely on CB-2 and CB-3, and 4.5 million square feet of office space. It included no convention center.

In addition to these four alternatives, the YBC FEIR also analyzed a November 1977 Tentative Proposal by the Redevelopment Agency which was a combination of elements from Alternatives A and B. However, none of these alternatives was singled out as "the project."

The YBC FEIR was certified by the City Planning Commission and the Redevelopment Agency Commission on April 25, 1978 and served as the environmental documentation for approval of the Amendment to the YBC Redevelopment Plan on August 13, 1979 by the Board of Supervisors and the Redevelopment Agency Commission.

Yerba Buena Center Environmental Impact Report Supplement (EE 81.27)

Referred to in this document as the First YBC EIR Supplement, the document was jointly prepared by the San Francisco Department of City Planning and the Redevelopment Agency as a supplement to the 1978 YBC FEIR. It was prepared shortly after issuing the RFQ and during the redevelopment team selection process in late 1980 and early 1981. It was occasioned by the Redevelopment Agency consideration of certain development concepts for Central Block 1 (CB-1) (Assessor's Block 3706) and proposal for construction of a private high school on Southern Block 4 (SB-4) (Assessor's Block 3763). These blocks may be identified in Figure 1 p. 4.

Although these development concepts were consistent with the land use program outlined in the RFQ and the YBC Redevelopment Plan, they differed from any of the alternatives discussed in the 1978 YBC FEIR. These differences included the proposal on Central Block 1 of 2,200 transient tourist hotel rooms, 500 market-rate dwelling units, and the acquisition and development of the General Services Administration (GSA) building site at 49 Fourth St., adjacent to the YBC Redevelopment Project Area. The 1978 YBC FEIR had considered only 700 hotel rooms on the block as a variant of Alternatives A and D and as part of the Tentative Proposal (YBC FEIR pp. 56-57), and did not include the GSA site. This First YBC EIR Supplement provided environmental information for the Redevelopment Agency and the Board of Supervisors when they amended the Redevelopment Plan for YBC to include the GSA Bldg. site on November 2, 1981.

Yerba Buena Center Environmental Impact Report Second Supplement (82.35 E)

This is the present document and is referred to herein as the Second YBC EIR Supplement. Since it is a supplement and not a new EIR, it updates the 1978 YBC FEIR and the First YBC EIR Supplement, and compares a new "Main Program" (and several variants) to the prototype alternatives in the original YBC FEIR.

The approach of this document is discussed in detail in Section III of this document. The Yerba Buena Center Final EIR (including Appendices and Responses to Comments) and the First YBC EIR Supplement (including the Response to Comments) are hereby incorporated in their entirety into this

document by reference, as provided for in Section 15149 of the Guidelines for Implementation of the California Environmental Quality Act (CEQA) (CAC Title 14, Division 6, Chapter 3). Relevant portions of both documents are briefly summarized throughout this document, as appropriate, and reference page numbers provided. Copies of the YBC FEIR and YBC EIR Supplement are available for public inspection at the Office of Environmental Review of the Department of City Planning, the offices of the Redevelopment Agency, and the San Francisco Public Library.

D. DECISION-MAKING PROCEDURES

As in the processing of the YBC FEIR and YBC EIR Supplement, the Redevelopment Agency and City Planning Commission will act as joint lead agencies for this Second YBC EIR Supplement. Pursuant to Section 15085(g) of CEQA, these two decision-making bodies must certify that they have reviewed and considered the information contained in the Second YBC EIR Supplement before approval of the land disposition and development agreement by the Redevelopment Agency Commission and the beginning of development of Central Blocks 1, 2 and 3, Eastern Block 2 and Southern Block 2. The responsibility for implementation of the Redevelopment Plan is vested in the Redevelopment Agency, which is authorized to acquire and sell land parcels, establish conditions of use, and review and approve building and landscaping plans. This authorization flows from the State Community Redevelopment Law by means of the adoption of the Redevelopment Plan by the Board of Supervisors.

The GSA Bldg. site at 49 Fourth St. has been incorporated into the YBC Redevelopment Project Area (by ammendment of the Redevelopment Plan in November, 1981). Although zoned P-Public under the City Planning Code, uses proposed for the site would be required to conform only to the land use designations in the Redevelopment Plan. Therefore, re-zoning of the site would not be required until Redevelopment Plan land use restrictions expire in the year 2006. At that time the GSA site would have to be rezoned by the Board of Supervisors from P-Public to C-3-R Downtown Retail. (See Section VI. A. 2., Land Use Designations and Zoning, p. 115 for further discussion.)

The official Redevelopment Plan for YBC, most recently amended on November 2, 1981 to include the GSA Bldg. site at 49 Fourth St. within the Redevelopment Project Area boundaries, would not have to be amended to implement the proposals evaluated in this Second EIR Supplement. All of the uses considered for YBC are permitted principal land uses for the Land Use Districts in which they are proposed.

II. GENERAL AREA DESCRIPTION

II. GENERAL AREA DESCRIPTION

A. REGIONAL AND LOCAL CONTEXT OF THE REDEVELOPMENT PROJECT AREA

YBC (see Figures 2 and 3 pp. 14 and 15) is a part of the larger South-of-Market district of San Francisco, which extends generally from The Embarcadero on the Bay shore to Eleventh St. on the west, and from Market St. on the north to China Basin and Townsend and Division Sts. on the south (Census Tracts 176, 178, 179, 180). The South-of-Market district is different from other parts of San Francisco in several respects. The street pattern is skewed approximately 45 degrees from the typical north-south and east-west orientation of most of the San Francisco grids. (For ease of description, and in line with local custom, the northeast-southwest oriented streets such as Mission, Howard, and Folsom are considered as east-west streets in this report, and the northwest-southeast oriented streets such as Third and Fourth are considered as north-south streets.) The area is generally flat; only the cut-down remnants of Rincon Hill, centered in the area between First and Second Sts., provide topographic variety (see Figure 24, p. 193 of the YBC FEIR). Block lengths are the longest in the City, measuring 825 ft. on the east-west streets and 550 ft. on the north-south streets.

The South-of-Market district serves as the entrance to downtown San Francisco for persons coming from the east over the San Francisco - Oakland Bay Bridge or from the south via the Southern Pacific Railroad and freeways serving Santa Clara and San Mateo Counties on the San Francisco Peninsula. For further information on the context and history of the redevelopment area, see pp. 13 - 22 of the YBC FEIR.

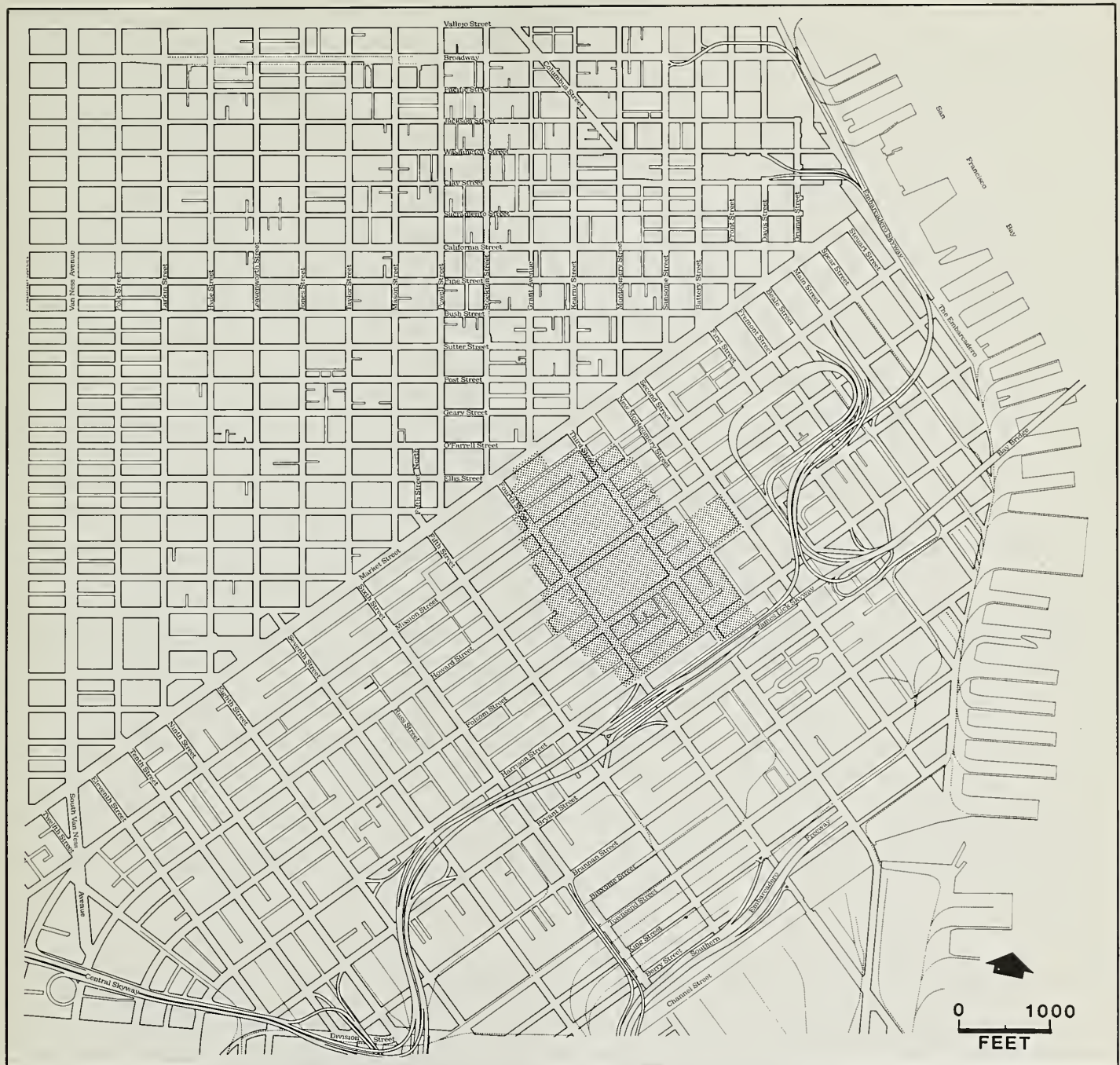
B. DESCRIPTION OF THE YERBA BUENA CENTER AREA AND VICINITY

Clearance of the YBC area began in 1970 and, except for the few remaining buildings intended to be demolished in accordance with the Redevelopment



FIGURE 2:
Area Location

SOURCE: Environmental Science Associates, Inc.,
using the YBC FEIR



LEGEND



Project Boundary

FIGURE 3:

Yerba Buena Center
Boundaries

SOURCE: Environmental Science Associates, Inc.,
using the YBC FEIR.

Plan, was completed in 1974. The clearance process required the relocation of approximately 2,070 individuals and 227 households, most of whom were single and/or elderly.

Throughout the EIR the blocks in the YBC area are designated, as indicated in Figure 1, p. 4, by a combination of letters and numbers, with the letters indicating the general location within YBC. For example, EB-1 means Eastern Block 1. Assessor's Block numbers are also shown in the legend of Figure 1.

The dominant interim use in the YBC area is in the form of temporary surface parking. Among the remaining buildings, two on Central Block 1 have been designated as landmarks by the San Francisco Board of Supervisors: St. Patrick's Church and the Jessie St. Substation (the latter is on the National Register of Historic Places; see Section V.M, p. 97). Construction has begun on several of the buildings proposed in the amended 1979 Redevelopment Plan and covered in the YBC FEIR, including the Convention Plaza (339,000 sq. ft. on EB-3), Woolf House Phase II (70 subsidized dwelling units on WB-3) and the Arcon Pacific Hotel (700 hotel rooms on CB-1). Buildings that have been completed since certification of the YBC FEIR are: part of Woolf House (112 of its total of 182 subsidized dwelling units have been completed) on WB-3; TODCO / Los Caballeros Dimasalang housing (147 subsidized dwelling units) on SB-2; and the George R. Moscone Convention Center (650,000 sq. ft.) on CB-3.

Several forms of transit serve Yerba Buena Center directly or indirectly ("direct" service denotes transit vehicles passing through YBC; "indirect" service denotes transit agencies with terminals outside YBC, but accessible by walking, direct transit, taxi or jitney). The transit routes directly serving YBC include those of: San Francisco Municipal Railway (Muni); San Mateo County Transit (SamTrans); Golden Gate Bridge, Highway and Transportation District Transit (Golden Gate Transit) buses; and the Bay Area Rapid Transit (BART) District. These routes are located principally on Market, Mission, Howard and Folsom Sts. in the east-west direction, and Third, Fourth and Fifth Sts. in the north-south direction. Independently franchised jitneys run along Mission St., and along Third and Fourth Sts. Indirect service includes the Alameda-Contra Costa Transit District (A-C Transit), CalTrans - Southern Pacific Railroad and the Golden Gate Transit ferry system.

Since 1978 office demand in Downtown San Francisco has increased at a rapid rate. Some 15.6 million sq. ft. of office space has been approved or constructed in Downtown San Francisco between 1978 and November 1981. This is over twice the increase in office space that occurred in the previous 4-year period (see Appendix A, Table A-1, p. 237).

The eastern portion of the YBC area abuts the southern extension of the Financial District along New Montgomery St., and is the site of further southward expansion of office uses on Hawthorne, Folsom, and Third Sts. The Market St. gateway to the area, opposite Grant Ave., is at the southeastern edge of the Union Square retail shopping and hotel district, a concentrated downtown activity area. The southern edge of the area is predominantly industrial in use and is dominated by the Bay Bridge approach and Central Skyway structures. West of YBC, dominant uses are either residential or commercial uses of a type which relate to and support the more-intensive downtown activities. Sixth St. contains retail outlets serving residents of the area, and hotels catering to permanent residents.

III. APPROACH TO THE EVALUATION OF ENVIRONMENTAL IMPACTS

III. APPROACH TO THE EVALUATION OF ENVIRONMENTAL IMPACTS

A. GENERAL PURPOSE AND APPROACH

This document is a Supplement to the 1978 YBC FEIR. Its general purpose is to update the environmental analysis of the YBC FEIR in light of (1) changes that have occurred in the YBC Redevelopment Project Area and immediate vicinity since 1978; and (2) current and more specific estimates of the development program likely to emerge for YBC. As to the first purpose, the environmental Setting and Impact sections of this Supplement have been written to take into account changes that have occurred within the Redevelopment Project Area such as the construction of the Moscone Convention Center, as well as increased construction in the immediate vicinity. As to the second goal, current estimates of the likely development program have been incorporated into this document through the elaboration of a "Main Program" and several variants. The Main Program serves as the "project" for purposes of this Supplement. It and its variants consist of a series of uses and square footages for each block of the Redevelopment Project Area, which represent a reasonable estimate of a development program likely to emerge in Yerba Buena Center.

This Second YBC EIR Supplement analyzes the environmental effects of this Main Program and its variants. This document then compares the environmental impacts of the Main Program with the environmental impacts of the four alternatives studied in the 1978 YBC FEIR. Where the impacts of the Main Program would differ from the impacts of the alternatives in the YBC FEIR, the differences have been discussed. Where the impacts of the Main Program are not different from the impacts of the alternatives discussed in the YBC FEIR, the information in the YBC FEIR has been summarized and incorporated by reference. Thus, though this document may be read independently of the YBC FEIR, it is truly a supplement rather than a new EIR in that it relies on the

III. Approach to the Evaluation of Environmental Impacts

prototype alternatives elaborated in the YBC FEIR for purposes of environmental comparison. Wherever possible, the Main Program is related to those four alternatives. The variants to the Main Program have been analyzed in equal detail to the Main Program; they are discussed after the Main Program is discussed in this document, and only where differences in impacts from the Main Program would occur.

To facilitate comparison between the environmental analysis in the YBC FEIR and in this Second YBC EIR Supplement, this Supplement parallels the YBC FEIR in format and methods as much as possible. Subject order and major heading titles in the YBC FEIR have been preserved in this Supplement. The block names used in the YBC FEIR are used in this document as well (see Figure 1, p. 4). Basic assumptions and methods used for calculations and/or analysis in the YBC FEIR have been used in all sections of this report, except for Transportation. Changes in accepted methods of trip distribution and capacity analysis have occurred since 1978. Therefore, the Transportation section in this Supplement uses currently accepted techniques, and makes only qualified comparison with the YBC FEIR results. (See Appendix C, p. 251, herein, for the differences in methodology between the two reports; see pp. 27-30 of the YBC FEIR for more detail on the approach to the evaluation of environmental impacts used in the YBC FEIR.)

All impacts have been considered in the same 1988 time frame used in the YBC FEIR. One major change should be noted: since the 1978 YBC FEIR was produced, the Redevelopment Project Area has been enlarged to include the site of the GSA Building, located at 49 Fourth St., covering about 48,000 sq. ft. of land. This site was added to the Redevelopment Project Area in November 1981, and was analyzed for the first time in the First YBC EIR Supplement. This Second YBC EIR Supplement includes the GSA Bdg. site in its environmental analysis.

A. USE OF THE 1978 YBC FEIR ALTERNATIVES FOR ENVIRONMENTAL COMPARISON.

The most important use of the 1978 YBC FEIR in this Second YBC EIR Supplement is the retention of the four prototype alternatives discussed and analyzed therein. These four prototype alternatives are still useful for purposes of environmental comparison, and accordingly throughout this Second YBC EIR Supplement, the impacts of the new proposed Main Program are compared with impacts identified for the four prototype alternatives in the 1978 YBC FEIR. (Section IV. Project Description contains a description of these four prototype alternatives on pp. 25 - 31.) Where the impact of the proposed Main Program would differ from the impacts of the alternatives discussed in the YBC FEIR the differences have been stated.

It should be noted that two of the prototype alternatives in the 1978 YBC FEIR assume no convention center in the YBC Redevelopment Project Area.

Alternative C (see Figure 6, p. 29) includes a 2-block, 21-acre public park on Central Block 2 and contains no convention center. Alternative D is the "no action alternative" for YBC as a whole, and is based on the revocation of the Redevelopment Plan and the sale of all uncommitted parcels on the open market. A variant of Alternative D was a "no action" alternative where the vacant parcels would remain in their current state. Both of these variations of Alternative D assume the absence of a convention center on Central Block 3.

Nonetheless, Alternatives C and D retain their usefulness for the purposes of environmental comparison. Alternative C provides a benchmark for environmental comparison between the Main Program and a lower density alternative involving a more traditional public park surrounded by housing. Similarly, Alternative D retains its usefulness as the "no project" alternative even though it could not be strictly carried out without the dismantling of the convention center. The purpose of the prototype alternatives in 1978 was to give decision-makers a general idea of four different approaches to density and uses in Yerba Buena Center from high to low. These alternatives have thus been retained for comparison purposes, and throughout this document, the Main Program is related to these four alternatives.

B. THE MAIN PROGRAM

The environmental analysis in this Second YBC EIR Supplement is based on a Main Program for the entire Redevelopment Project Area. Development proposals for much of the YBC Redevelopment Project Area are more advanced than in 1978, especially in the Central Blocks. The Central Blocks are currently the subject of ongoing negotiations with Olympia & York. In portions of the Redevelopment Project Area new buildings have already been constructed, are under construction, or plans have been approved. The George R. Moscone Convention Center has been opened on Central Block 3. Thus, while the 1978 YBC FEIR chose to examine four alternative prototype scenarios for YBC (and several variants) in equal detail choosing no one alternative as "the project," this Second YBC EIR Supplement focuses on one Main Program which incorporates these recent developments. Several variants to the Main Program are included, as well. The variants refer to variations on individual blocks. They are discussed only where differences in impacts from the Main Program would occur.

The Main Program and its variants are described in the Summary and set forth in detail in Section IV., p. 25, of this document. The Main Program consists of uses and square footages for each block in the Yerba Buena Center Redevelopment Project Area. For the peripheral blocks of YBC, the Main Program and variants reflect the Redevelopment Agency staff's best estimates of square footages and uses which are reasonable and likely to occur. In some cases, these estimates are simply derived from the maximum height, bulk, and use limitations contained in the Redevelopment Plan for YBC approved by the San Francisco Board of Supervisors. Where buildings already are in place, under construction, or approved, the Main Program and variants adopt the existing or approved uses and square footages.

For the Central Blocks of YBC, the uses and square footages in the Main Program and its variants reflect the fact that these central blocks are currently the subject of exclusive negotiations between the Redevelopment Agency staff and Olympia & York. Although the negotiations are not yet

III. Approach to the Evaluation of Environmental Impacts

complete, much information is available as to these Central Blocks from such sources as the Request for Qualifications issued by the Agency in April, 1980, and in various submissions made public by Olympia & York. Accordingly, the Redevelopment Agency and the staff of the San Francisco Department of City Planning, with the assistance of Olympia & York, have selected uses and square footages for the Main Program and variants which establish a range of development. This range is most likely to include the program which will emerge from the negotiations as a proposed land disposition and development agreement. In order to ensure an environmental analysis of "worst case" effects, the Main Program and its variants generally consider the maximum in the range of amounts under negotiation.

Although the Main Program and its variants list the gross floor area or number of units of each use, they do not indicate the precise design and spatial arrangement of proposed uses since such matters are the subject of ongoing negotiations for the Central Blocks and, as to the peripheral blocks, are difficult to predict on the basis of current information. The Main Program itself and its variants are limited to the uses and gross floor area described in Section IV, p. 25. To the extent that specific locations are included in the Main Program, they are so indicated in the narrative in Section IV. For example, the Main Program and its variants call for the retention of the Jessie St. Substation and St. Patrick's Church on Central Block 1, and the location of those buildings is described as part of the Main Program and variants.

However, with the exception of precise wind and shadow studies, which would be performed at the design stage, the Main Program and variants are sufficiently detailed to allow environmental analysis. Where necessary, reasonable building locations have been assumed. For example, in the Transportation section various entrances and exits have been assumed. Wherever possible, assumptions have been tailored to produce a "worst case" environmental analysis.

Variants are considered for three YBC blocks (see Section IV. Project Description, p. 25). Each variant consists of uses and square footages for one YBC block only. This Supplement considers the effects of each variant

block in comparison with the Main Program uses for that block. The Supplement then considers the effects of all YBC were the variant block to be substituted for the corresponding Main Program block. The effects of each variant are discussed only where differences in impacts from the Main Program would occur. For ease of analysis, each variant is considered separately. Combinations of two or more of the one-block variants is set up so that one may determine the effects of a combination of variants. For example, implementation of Variant A would increase annual energy consumption by 59 billion BTU (see Table 25, p. 190). Variant C would increase annual energy consumption by 13 billion BTU. The new result of implementing both variants would be to raise annual energy over that for the Main Program by a total of 72 billion BTU, or about 3% for all of YBC. Other impacts resulting from the combination of different variants can be similarly estimated.

C. DESCRIPTION OF PROPOSALS FOR CENTRAL BLOCKS 1 AND SOUTHERN BLOCK 4 EVALUATED IN THE FIRST YBC EIR SUPPLEMENT

The July 1981 First YBC EIR Supplement evaluated land uses for CB-1 and SB-4 not considered in the 1978 YBC FEIR. The First YBC EIR Supplement analyzed uses proposed for CB-1, called the "new mixed-used proposal," consisting of

500,000 sq. ft. of office space, 80,000 sq. ft. of retail-commercial space, up to 500 market-rate dwelling units, a 700-room (Arcon-Pacific) Hotel fronting on Third St., and 1,500 additional hotel rooms, which were not specifically sited. The "new mixed-use proposal" represented all these uses under consideration for CB-1. These uses are all included in the Main Program, analyzed in this Second Supplement. The proposal for SB-4 within the redevelopment area boundaries (see Figure 1, p. 4) was for a private high school for about 300 students. The school was to be constructed on a 25,200 sq. ft. portion of the block (on Assessor's Parcels 3763-A and -C), and did not represent all uses under consideration for SB-4 (34,650 sq. ft. of existing light industrial space would remain).

III. Approach to the Evaluation of Environmental Impacts

For further description of the "new mixed-use proposal" for CB-1 and the high school for SB-4, refer to pp. 16-19 and pp. 90-92 of the First YBC EIR Supplement.

IV. PROJECT DESCRIPTION

IV. PROJECT DESCRIPTION

The uses evaluated in this Supplement, which are collectively referred to as the Main Program, represent the program of land uses for the YBC Redevelopment Project Area currently (1981-1982) under consideration by the San Francisco Redevelopment Agency. Four variants are also evaluated and are under consideration by the Redevelopment Agency. Under the Main Program five of YBC's 13 blocks, including the four "super blocks" along YBC's central north-south axis, and covering 60% to 70% of YBC's total area, would contain a mixture of uses not previously considered in any of the four YBC FEIR alternatives or in any possible combination thereof. The remaining eight blocks, which have uses that have been analyzed previously, are included in this study in order to provide both the public and the decision makers with a description of the effects of the most recently proposed program for YBC as a whole, and to facilitate comparisons between findings in this YBC Second Supplement and those in the YBC FEIR and First YBC EIR Supplement (see Section III. Approach p. 18). The YBC FEIR alternatives are described in Section A. below. The complete Main Program is described in Section IV. B., p. 31, and the variants to the Main Program are described in Section IV. C., p. 44.

A. DESCRIPTION OF THE FOUR ALTERNATIVES EVALUATED IN THE YBC FEIR

Each alternative in the YBC FEIR consisted of existing, committed and "discretionary" land uses. Discretionary uses were those proposed land uses that varied among the four alternatives and in fact, defined each alternative. The following description of the alternatives refers to the discretionary uses unless otherwise noted.

Alternative A was based on the official Redevelopment Plan for YBC, as amended through 1977 (see Figure 4, p. 27). Within the entire YBC area, this alternative would provide for about 6 million sq. ft. of office space in high-rise buildings; about 700,000 sq. ft. of retail uses; a hotel on CB-2;

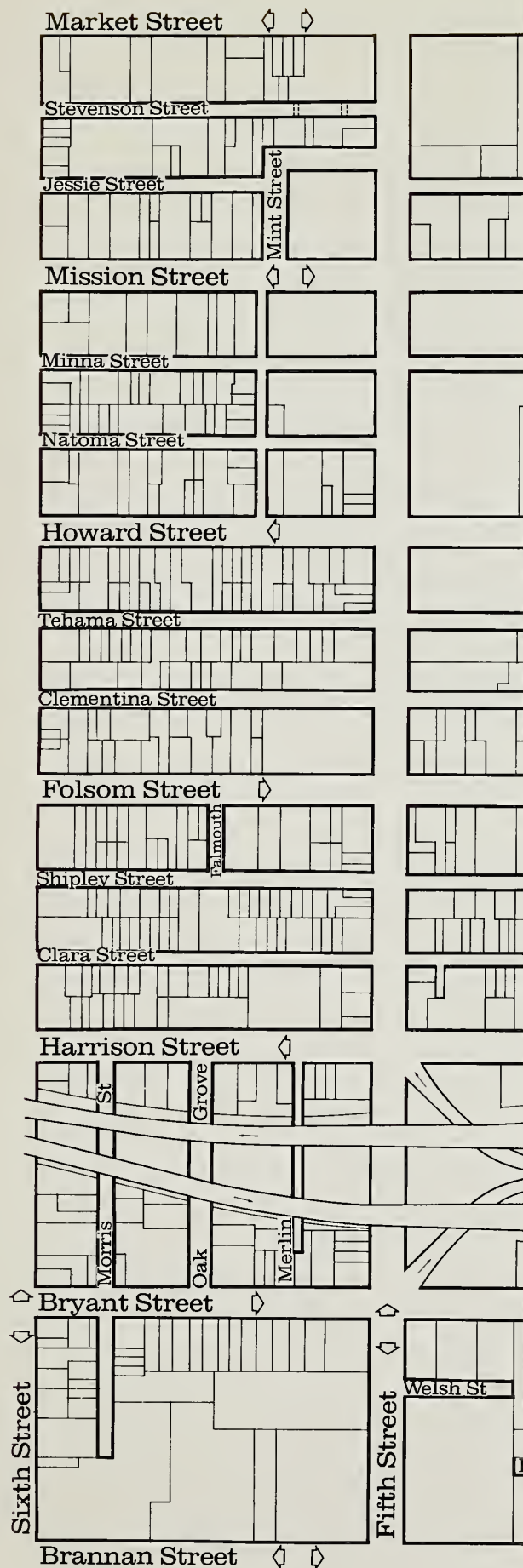
indoor commercial entertainment facilities; the convention center; a pedestrian concourse and urban plazas extending from Market St. to Howard St.; four (committed) sites for subsidized housing for the elderly (602 dwelling units) and one market-rate housing development (50 dwelling units) atop a proposed office building (apparel mart); light industrial uses (about 1 million sq. ft.); and two public parking garages.

Alternative B (see Figure 5, p. 28) was based on recommendations of the Mayor's Select Committee on Yerba Buena Center, which were submitted in August 1976. In the entire YBC area, this alternative would provide for about 3 million sq. ft. of office space; about 300,000 sq. ft. of retail uses; the same subsidized housing for the elderly as in Alternative A (602 dwelling units); subsidized-family housing (300 dwelling units); additional market-rate housing (650 dwelling units total); the convention center; a commercial/recreation/entertainment park; and about 350,000 sq. ft. of light-industrial uses.

The Redevelopment Agency November 1977 Tentative Proposal combined components of Alternatives A and B. Alternative A was taken as a base, with components of Alternative B replacing some of A's components (see YBC FEIR, pp. 58 and 60 - 61).

Alternative C (see Figure 6, p. 29) for the entire YBC area was based on a concept derived from public suggestions and comments made on the original redevelopment plans and on the earlier EIR and Federal EIS. It included a two-block, 21-acre public park and contained no convention center nor recreation/entertainment park. It included more market-rate housing than Alternative B (1,000 dwelling units total) and about half the office and retail space of that alternative, as well as about 350,000 sq. ft. of light-industrial uses.

Alternative D (see Figure 7, p. 30) was a "no action" alternative for YBC as a whole. It was based on the revocation of the Redevelopment Plan and the sale of all uncommitted parcels on the open market for private uses which would



YERBA BUENA CENTER SECOND SUPPLEMENT

LEGEND

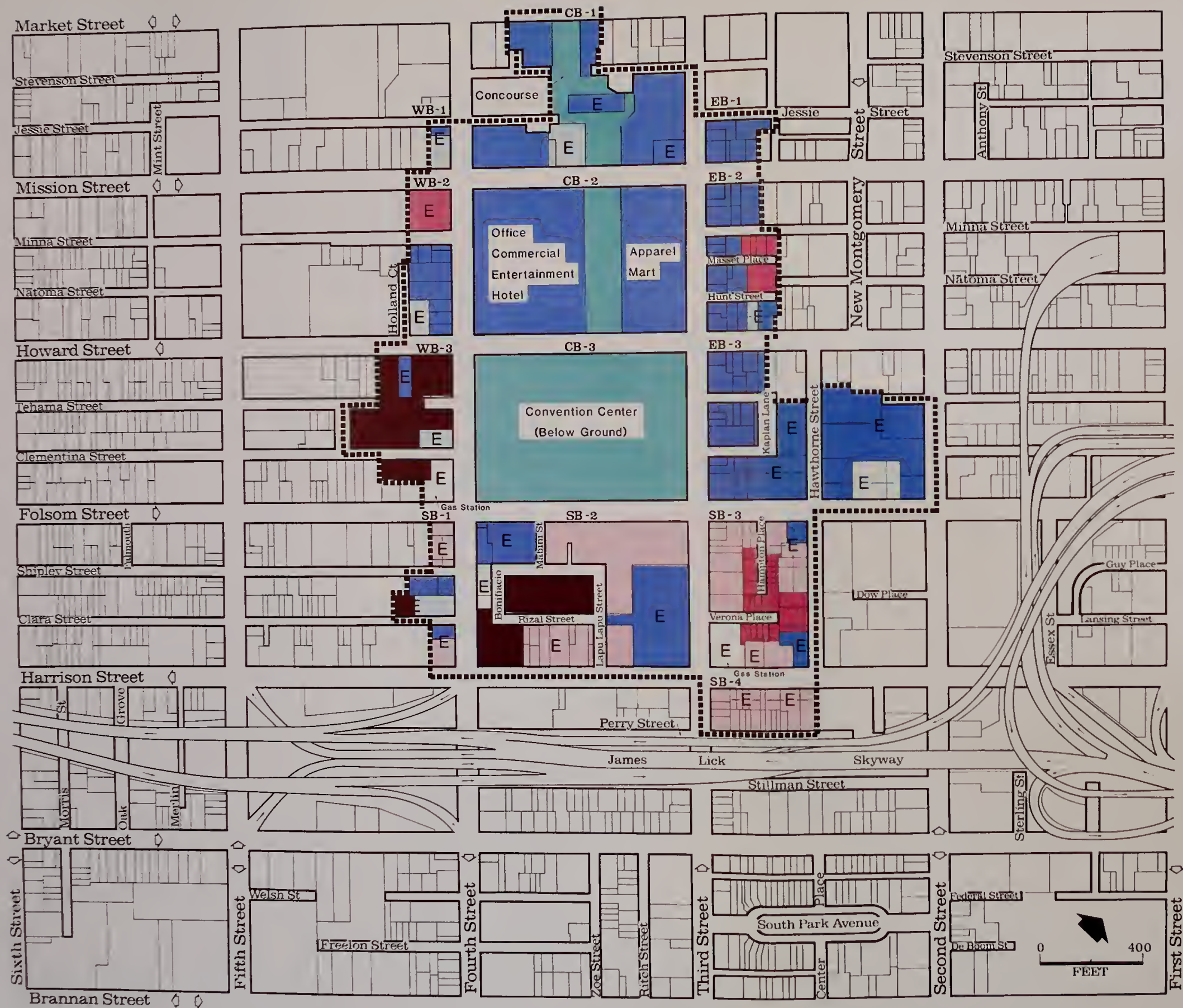
- Housing
- Office and Retail
- Downtown Support
- Light Industry
- Parking
- Institutional
- Park, Open Space
- E Existing, to Remain

..... Redevelopment Area Boundary

FIGURE 4:
Land Uses Proposed Under
Alternative A

SOURCE:

Environmental Science Associates, Inc., using information
from the YBC FEIR



YERBA BUENA CENTER SECOND SUPPLEMENT

LEGEND

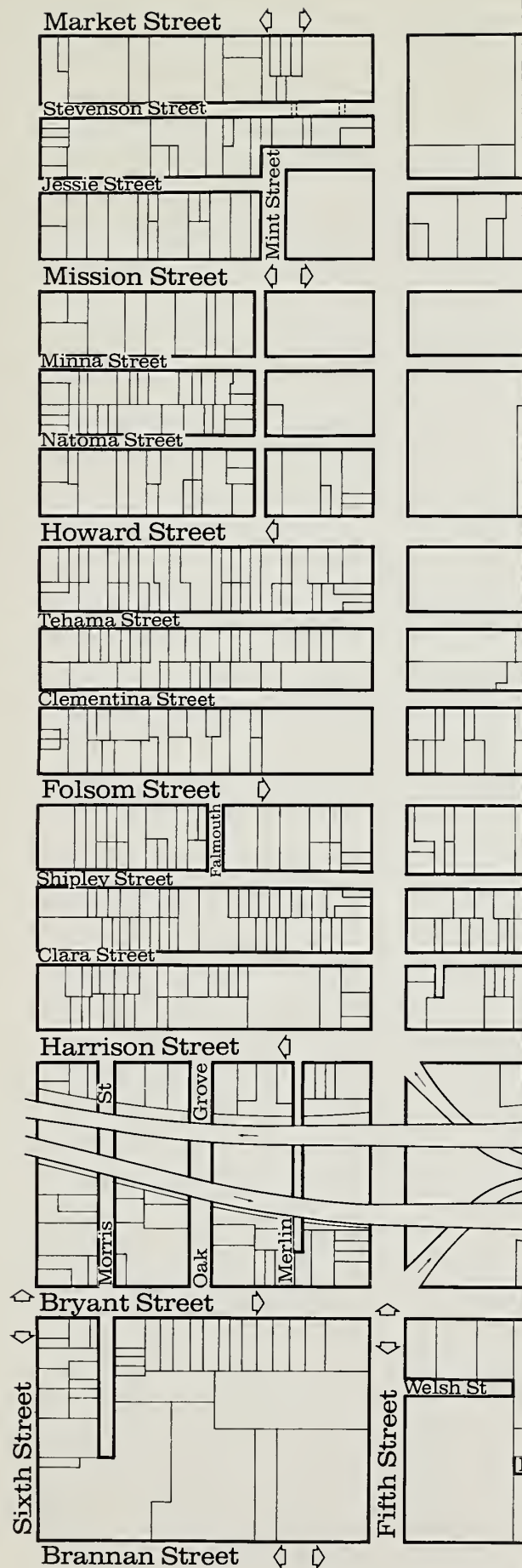
- Housing
- Office and Retail
- Downtown Support
- Light Industry
- Parking
- Institutional
- Park, Open Space
- E Existing, to Remain

----- Redevelopment Area Boundary

FIGURE 4:
Land Uses Proposed Under
Alternative A

SOURCE:

Environmental Science Associates, Inc., using information
from the YBC FEIR



YERBA BUENA CENTER SECOND SUPPLEMENT

LEGEND

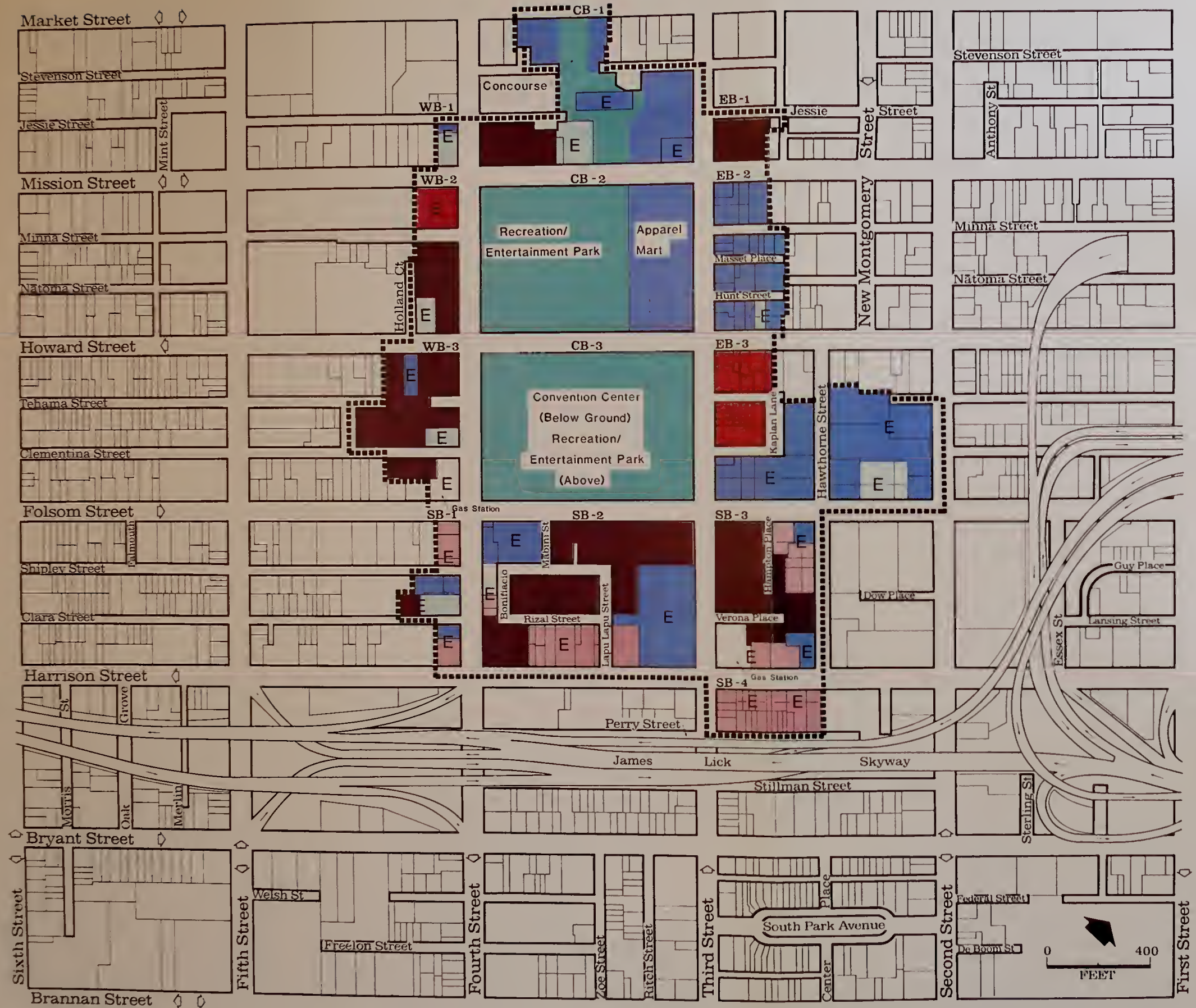
-  Housing
-  Office and Retail
-  Downtown Support
-  Light Industry
-  Parking
-  Institutional
-  Park, Open Space
-  Existing, to Remain

..... Redevelopment Area Boundary

FIGURE 5:
Land Uses Proposed Under
Alternative B

SOURCE:

Environmental Science Associates, Inc., using information
from the YBC FEIR



YERBA BUENA CENTER SECOND SUPPLEMENT

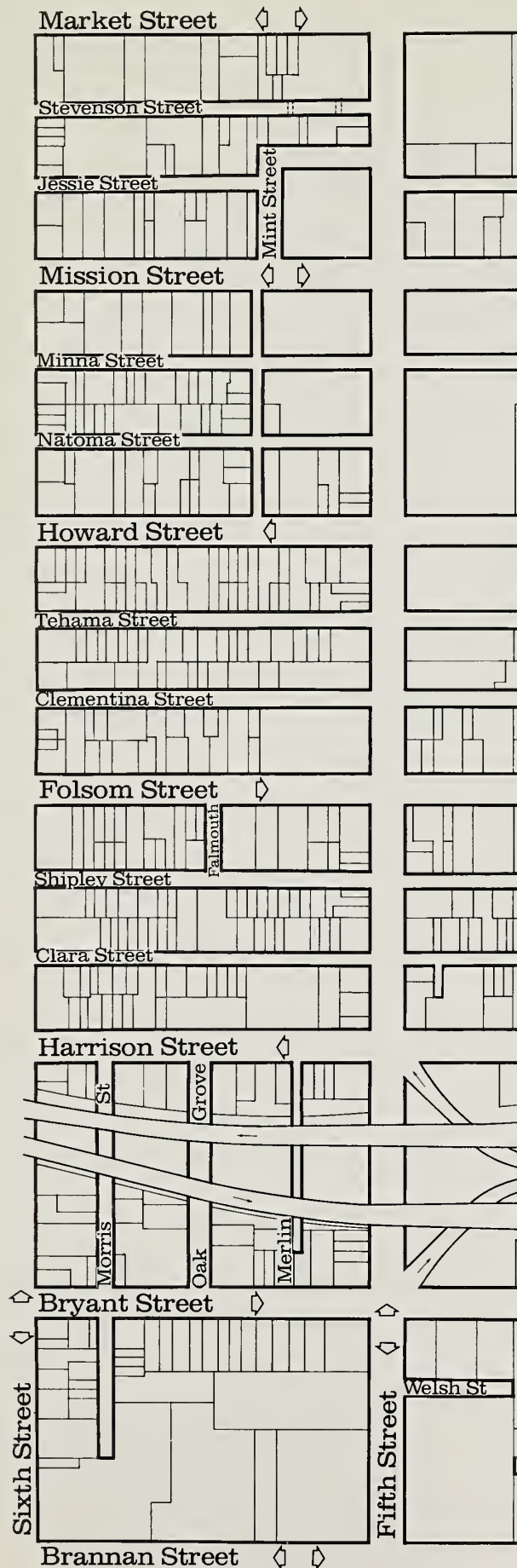
LEGEND

- Housing
- Office and Retail
- Downtown Support
- Light Industry
- Parking
- Institutional
- Park, Open Space
- E Existing, to Remain

----- Redevelopment Area Boundary

FIGURE 5:
Land Uses Proposed Under
Alternative B

SOURCE:
Environmental Science Associates, Inc., using information
from the YBC FEIR



YERBA BUENA CENTER SECOND SUPPLEMENT

LEGEND

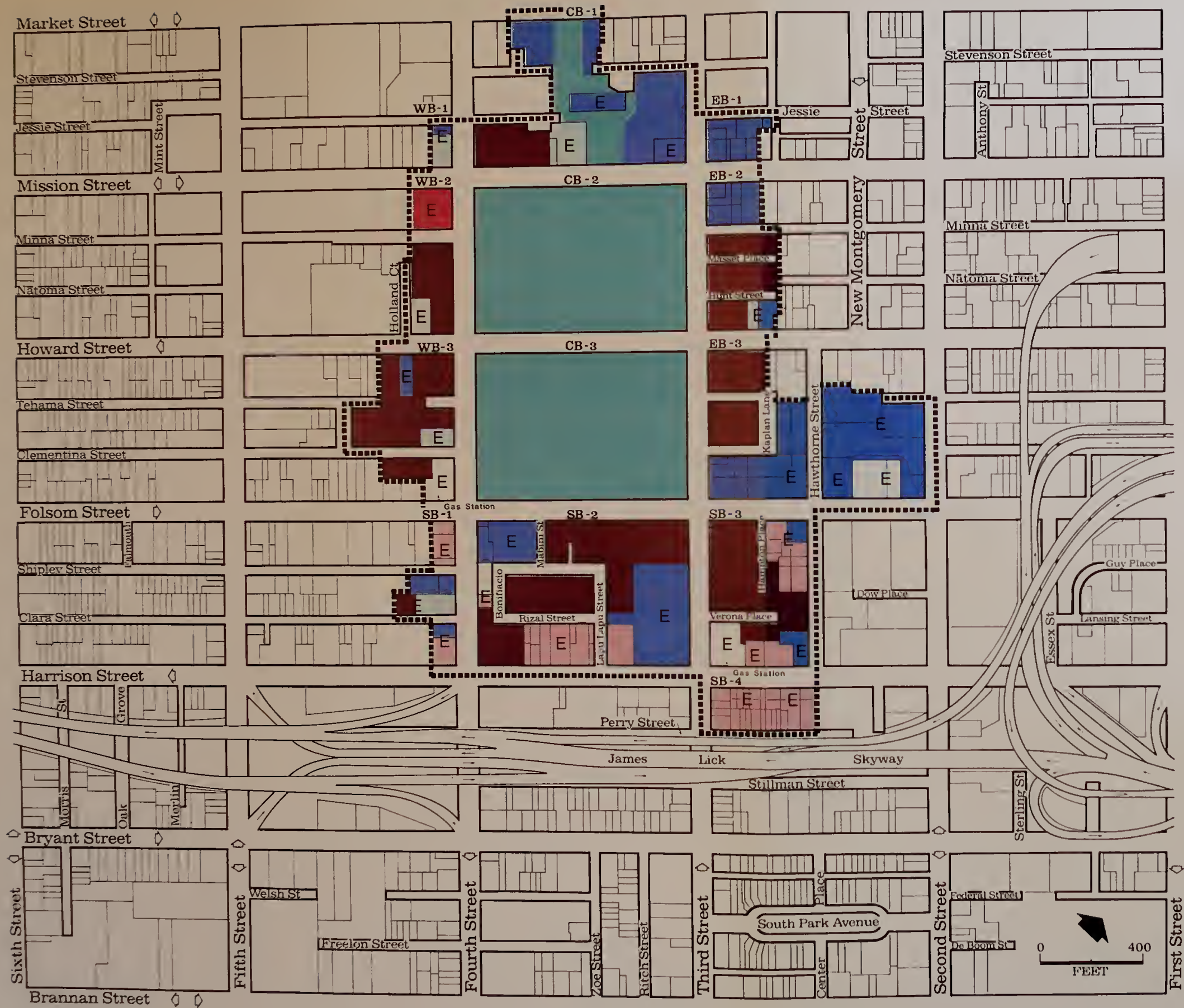
- Housing
- Office and Retail
- Downtown Support
- Light Industry
- Parking
- Institutional
- Park, Open Space
- E Existing, to Remain

..... Redevelopment Area Boundary

FIGURE 6:
Land Uses Proposed Under
Alternative C

SOURCE:

Environmental Science Associates, Inc., using information
from the YBC FEIR



YERBA BUENA CENTER SECOND SUPPLEMENT

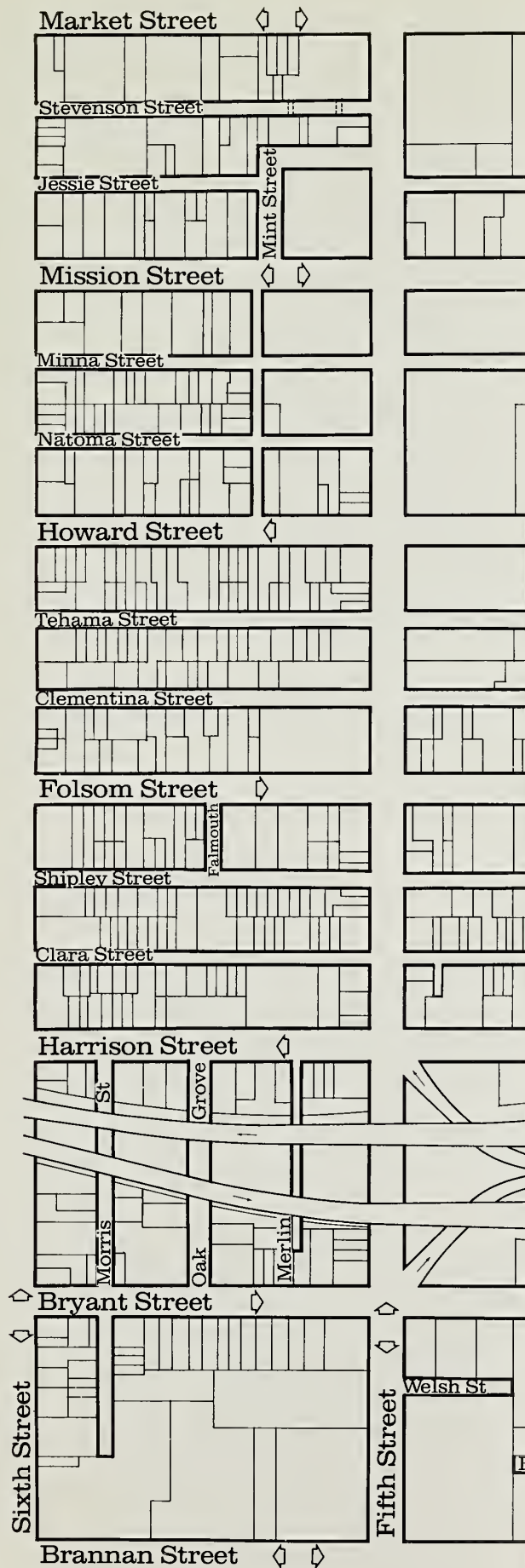
LEGEND

- Housing
- Office and Retail
- Downtown Support
- Light Industry
- Parking
- Institutional
- Park, Open Space
- E Existing, to Remain

----- Redevelopment Area Boundary

FIGURE 6:
Land Uses Proposed Under
Alternative C

SOURCE:
Environmental Science Associates, Inc., using information
from the YBC FEIR



YERBA BUENA CENTER SECOND SUPPLEMENT

LEGEND

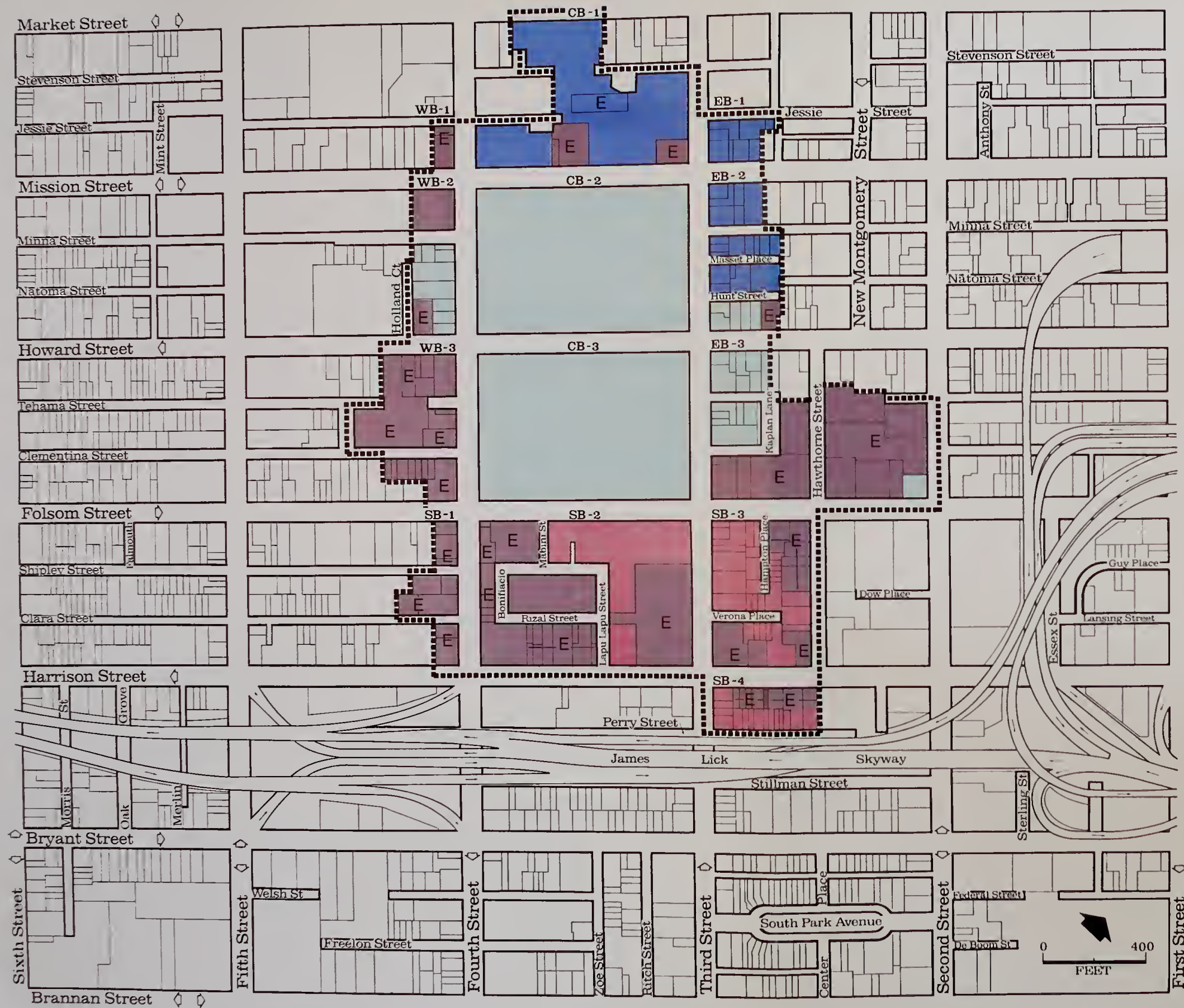
- Office and Retail
- Downtown Support
- Light Industry
- Existing, under construction, or committed
- E Existing, to Remain

----- Redevelopment Area Boundary

FIGURE 7:
Land Uses Proposed Under
Alternative D

SOURCE:

Environmental Science Associates, inc., using information
from the YBC FEIR



YERBA BUENA CENTER SECOND SUPPLEMENT

LEGEND

- Office and Retail
- Downtown Support
- Light Industry
- Existing, under construction, or committed
- E Existing, to Remain

..... Redevelopment Area Boundary

FIGURE 7:
Land Uses Proposed Under
Alternative D

SOURCE:

Environmental Science Associates, Inc., using information
from the YBC FEIR

comply with existing zoning laws. A variant of this "no action" alternative is one in which no further action of any kind would be taken and the vacant parcels would remain in their present state. The available lot area in CB-1 (97,000 sq. ft. within the redevelopment area) would be developed under the C-3-R Planning Code Use District standards. The main permitted uses are retail-commercial and office uses, with a maximum gross floor area ratio (FAR) of 10:1; that is, a ratio of ten sq. ft. of floor space to one sq. ft. of lot area. The block is in the 400-I Height and Bulk District, which permits a maximum building height of 400 feet. Approximately 100,000 sq. ft. of retail space could be developed and up to 2,000,000 sq. ft. of office space could be accommodated. All of CB-2 and CB-3 would be used for downtown support services, providing an estimated 5.34 million sq. ft. for such uses. Housing would be permitted. In SB-4, there would be 35,000 sq. ft. of land available for industrial development along Perry St. This could accommodate approximately 175,000 sq. ft. of industrial space.

For further description of the four alternatives, refer to pp. 31 - 62 of the YBC FEIR.

B. THE MAIN PROGRAM

Table 1 contains a list of the uses proposed for each of the YBC blocks under the Main Program. The list shows which uses are existing and to be preserved, which uses have been constructed since completion of the 1978 YBC FEIR, which uses would be in rehabilitated buildings and which uses are under construction; all uses not given one of these descriptions are yet to be constructed. Figure 8, p. 38, shows the locations of the Main Program uses.

Also proposed, but not listed in Table 1, are the pedestrian plaza, and park uses. Central Block 1 (CB-1) would contain a 71,000-sq.-ft. covered pedestrian plaza, which would connect Market St. with a plaza adjacent to St. Patrick's Church and fronting Mission St. Central Block 2 (CB-2) would have 60% of its land area, or about 272,400 sq. ft., preserved as open

TABLE 1: PROPOSED MAIN PROGRAM FOR YBC (gross sq. ft. of floor area unless otherwise noted)

Central Block 1

- Office Space	500,000 sq. ft.
- Office Space	90,000 sq. ft. (rehabilitated)
- Hotel	2,200 rooms
- Retail/Commercial	200,000 sq. ft.
- Housing	500 market-rate dwelling units
- Institutional	Church & Rectory
- Cultural	10,000 sq. ft.
- Accessory Parking	950 spaces
- Pedestrian Concourse/Plaza	71,000 sq. ft.

Central Block 2

- Retail/Commercial	90,000 sq. ft.
- Cultural	120,000 sq. ft.
- Amusement/Recreation/ Entertainment	135,000 sq. ft.
- Underground Ballroom and Exhibit Room	100,000 sq. ft.
- Accessory Parking	1,500 spaces
- Pedestrian Concourse or Plaza	99,000 sq. ft.
- Public Park or Plaza	173,400 sq. ft.

Central Block 3

- Convention Center	650,000 sq. ft. (completed since 1978)
- Cultural	10,000 sq. ft.
- Amusement/Recreation/ Entertainment	120,000 sq. ft.
- Retail/Commercial	30,000 sq. ft.
- Public Park or Plaza	82,000 sq. ft.

Eastern Block 1

- Office Space	593,000 sq. ft.
- Retail/Commercial	60,000 sq. ft.

Eastern Block 2

- Housing	300 market-rate dwelling units
- Retail/Commercial	10,000 sq. ft.
- Cultural	200,000 sq. ft.
- Office	700,000 sq. ft.
- Accessory Parking	500 spaces

TABLE 1: PROPOSED MAIN PROGRAM FOR YBC, Continued

Eastern Block 3

- Office Space	339,000 sq. ft. (under construction)
- Office Space	25,000 sq. ft. (rehab)
- Public Parking	800 spaces
- Housing	200 market-rate dwelling units
- Office Space	833,000 sq. ft. (existing)

Western Block 1

- Institutional	63,000 sq. ft. (existing)
- Retail/Commercial	5,500 sq. ft. (existing)

Western Block 2

- Public Parking	296 spaces (existing)
- Office Space	300,000 sq. ft. (completed since 1978)

Western Block 3

- Housing	388 subsidized dwelling units (completed since 1978)
- Housing	70 subsidized dwelling units (under construction)
- Housing	95 subsidized dwelling units
- Office Space	15,500 sq. ft. (existing)
- Retail/Commercial	14,800 sq. ft. (existing)
- Institutional	33,000 sq. ft. (existing)

Southern Block 1

- Office Space	11,000 sq. ft.
- Light Industrial	25,350 sq. ft. (existing)
- Institutional	23,600 sq. ft. (existing)
- Retail/Commercial	10,000 sq. ft. (existing)
- Retail/Commercial	12,000 sq. ft.

Southern Block 2

- Office Space	573,500 sq. ft. (existing)
- Office Space	80,000 sq. ft.
- Light Industry	28,100 sq. ft. (existing)
- Housing	147 subsidized dwelling units (completed since 1978)
- Housing	320 market-rate dwelling units
- Housing	200 subsidized dwelling units
- Downtown Support	10,500 sq. ft. (existing)
- Public Parking	800 spaces
- Retail/Commercial	35,000 sq. ft.

TABLE 1: PROPOSED MAIN PROGRAM FOR YBC, Continued

Southern Block 3

- Housing	650 market-rate dwelling units
- Office Space	12,000 sq. ft. (existing)
- Retail/Commercial	29,600 sq. ft. (existing)
- Light Industry	49,200 sq. ft. (existing)

Southern Block 4

- Institutional	300 students
- Light Industrial	34,650 sq. ft. (existing)

SOURCE: San Francisco Redevelopment Agency

space (a requirement of the RFQ, p. 21). Of this open space, about 99,000 sq. ft. would be a pedestrian plaza; the remainder would be landscaped park or "garden" uses. About 40% (roughly 82,000 sq. ft.) of the buildable surface area of CB-3, the George R. Moscone Convention Center block, would be open space (also a requirement of the RFQ, p. 21).

Exact building design and placement have not been determined for the uses in Table 1 listed as not yet constructed. All buildings are assumed to conform with the height restrictions in the Redevelopment Plan (see Section V.A. Land Use, Zoning and Visual Aspects, p. 47). In some sections of the report an assumed building placement on a block is necessary to perform an analysis (Transportation, Noise, Air Quality, Wind and Shadows). In each case a building placement is chosen which would maximize the building's impact.

Table 2 shows Main Program uses block-by-block in relation to what was considered for each block under the YBC FEIR alternatives and in the First YBC EIR Supplement. A comparison of the total square footages under each YBC FEIR alternative and the Main Program at the end of Table 2, p. 37, shows that the Main Program differs from the alternatives in cultural uses, hotel rooms, market-rate dwelling units, downtown support uses and light industrial uses. All of these except the downtown support uses and light industrial uses have

TABLE 2: COMPARATIVE USES AND FLOOR AREA BY ALTERNATIVE AND MAIN PROGRAM, BY BLOCK, 1988

Block	Land Uses	1988 YBC FEIR Alternatives					1988 First YBC EIR Supplement** Max. Floor Space (Sq. Ft.)*	1988 Proposed Main Program Max. Floor Space (Sq. Ft.)*
		Alternative A Max. Floor Space (Sq. Ft.)*	Alternative B Max. Floor Space (Sq. Ft.)*	Alternative C Max. Floor Space (Sq. Ft.)*	Alternative D Max. Floor Space (Sq. Ft.)*			
CB-1	Cultural Hotel						2,200 rooms	10,000
	Institutional						Church & Rectory	2,200 rooms
	Market-Rate Dwelling Units (DU)						500 DUs	500 DUs
	Office	1,877,000	1,252,000	702,000	1,825,000		582,000	590,000
	Pedestrian Concourse or Plaza	81,000	81,000	81,000			81,000	71,000
CB-2	Accessory Parking						525 spaces	950 spaces
	Retail Commercial	238,000	160,900	123,000	251,000		89,000	200,000
	Commercial Entertainment							
	Cultural	400,000	303,000					135,000
	Downtown Support Service Exhibit/Ballroom Space					2,157,500		120,000
CB-3	Hotel	700 Rooms						
	Market-Rate Dwelling Units	50 DUs						
	Office	1,497,000	455,000					
	Park (Public) or Plaza			454,000				173,400
	Pedestrian Concourse or Plaza	82,500						99,000
EB-1	Accessory Parking							1,500 spaces
	Retail Commercial	306,000	152,000					90,000
	Commercial Entertainment							
	Convention Facility	454,000***	454,000***					120,000
	Cultural							650,000
EB-2	Downtown Support Service							10,000
	Park (Public) or Plaza			454,000				
	Retail Commercial							82,000
	Market-Rate Dwelling Units							30,000
	Office	599,500	400 DUs					
EB-3	Accessory Parking	66,500	13,500					593,000
	Retail Commercial		31,500	231,500	459,500			60,000
	Commercial			38,500	6,500			
	Cultural							200,000
	Downtown Support Service							300 DUs
EB-4	Market-Rate Dwelling Units							700,000
	Office							
	Accessory Parking	1,297,500	910,500	300 DUs	803,500			500 spaces
	Retail Commercial	500 spaces	10,500	177,500	43,500			10,000
	Commercial	30,500		43,500				

Block	Land Uses	1988 YBC FEIR Alternatives				1988	
		Alternative A Max. Floor Space (Sq. Ft.)*	Alternative B Max. Floor Space (Sq. Ft.)*	Alternative C Max. Floor Space (Sq. Ft.)*	Alternative D Max. Floor Space (Sq. Ft.)*	First YBC EIR Supplement** Max. Floor Space (Sq. Ft.)*	1988 Proposed Main Program Max. Floor Space (Sq. Ft.)*
EB-3	Downtown Support Service	60,100	60,100	60,100	625,625		200 DUs
	Market-Rate Dwelling Units (DU)			300 DUs			1,197,000
	Office	1,576,200	889,700	882,000	833,000		800 spaces
	Accessory Parking	400 spaces	400 spaces	400 spaces	400 spaces		
WB-1	Public Parking		1,250 spaces				
	Retail Commercial			8,000			
	Institutional	86,000	86,000	86,000	86,000		63,000
	Retail Commercial	5,500	5,500	5,500	5,500		5,500
WB-2	Downtown Support Service	28,400	28,400	28,400	333,400		
	Market-Rate Dwelling Units		100 DUs	200 DUs			
	Office	304,900					
	Public Parking	296 spaces	296 spaces	296 spaces	296 spaces		300,000
WB-3	Institutional	33,000	33,000	33,000	33,000		33,000
	Office	15,500	15,500	15,500	15,500		15,500
	Retail Commercial	14,800	14,800	14,800	14,800		14,800
	Subsidized Dwelling Units	548 DUs	548 DUs	548 DUs	548 DUs		553 DUs
SB-1	Institutional	17,600	17,600	17,600	17,600		23,600
	Light Industry	43,350	43,350	46,950	46,950		25,350
	Office		50,000	50,000			11,000
	Accessory Parking	16 spaces	16 spaces	16 spaces	16 spaces		
SB-2	Retail Commercial	71,900	22,000	22,000	71,875		22,000
	Subsidized Dwelling Units						
	Downtown Support Service	10,500	10,500	10,500	10,500		10,500
	Light Industry	626,900	127,100	127,100	686,801		28,100
SB-3	Market-Rate Dwelling Units						320 DUs
	Office	573,500	573,500	573,500	573,500		653,500
	Accessory Parking	43 spaces	43 spaces	43 spaces	43 spaces		
	Public Parking						
SB-4	Retail Commercial	340 DUs	460 DUs	460 DUs	340 DUs		800 spaces
	Subsidized Dwelling Units						35,000
	Light Industry	387,950	99,200	99,200	731,200		347 DUs
	Market-Rate Dwelling Units						49,200
SB-5	Office	12,000	12,000	12,000	12,000		650 DUs
	Accessory Parking	32 spaces	32 spaces	32 spaces	32 spaces		12,000
	Public Parking	760 spaces					
	Retail Commercial	35,300	35,300	35,300	35,300		29,600
SB-6	Subsidized Dwelling Units		180 DUs	180 DUs			
	Institutional	156,550	210,650	223,650	223,650		300 students
	Light Industry						34,650
	Accessory Parking	180 spaces					

TABLE 2: COMPARATIVE USES AND FLOOR AREA BY ALTERNATIVE AND MAIN PROGRAM, BY BLOCK, 1988 (Continued)

Block	Land Uses	1988 YBC FEIR Alternatives				1988
		Alternative A	Alternative B	Alternative C	Alternative D	Proposed
		Max. Floor Space (Sq. Ft.)*	Max. Floor Space (Sq. Ft.)*	Max. Floor Space (Sq. Ft.)*	Max. Floor Space (Sq. Ft.)*	Main Program Max. Floor Space (Sq. Ft.)*
TOTAL :						
	Commercial Entertainment Convention Facility	400,000 454,000***	303,000 454,000***			255,000 650,000
	Cultural					340,000
	Downtown Support Service Exhibit/Ballroom Space	99,000	99,000	99,000	6,434,025	10,500 100,000
	Hotel Rooms	700 rooms				2,200 rooms
	Institutional	136,600	136,600	136,600	136,600	119,600 and 300 students
	Light Industry	1,214,750	480,300	496,900	1,688,600	137,300
	Market-Rate Dwelling Units (DU)	50 DUS	650 DUS	1,000 DUS		1,970 DUS
	Office	7,753,100	4,171,700	2,644,000	4,522,000	4,072,000
	Park (Public) or Plaza			908,000		255,400
	Pedestrian Concourse or Plaza	163,500	81,000	81,000		170,000
	Accessory Parking	1,171 spaces	491 spaces	491 spaces	491 spaces	3,750 spaces
	Public Parking	1,056 spaces	1,546 spaces	296 spaces	296 spaces	1,096 spaces
	Retail Commercial	768,500	432,500	290,600	428,475	496,900
	Subsidized Dwelling Units****	888 DUS	1,188 DUS	1,188 DUS	888 DUS	900 DUS

* In sq. ft. unless otherwise noted

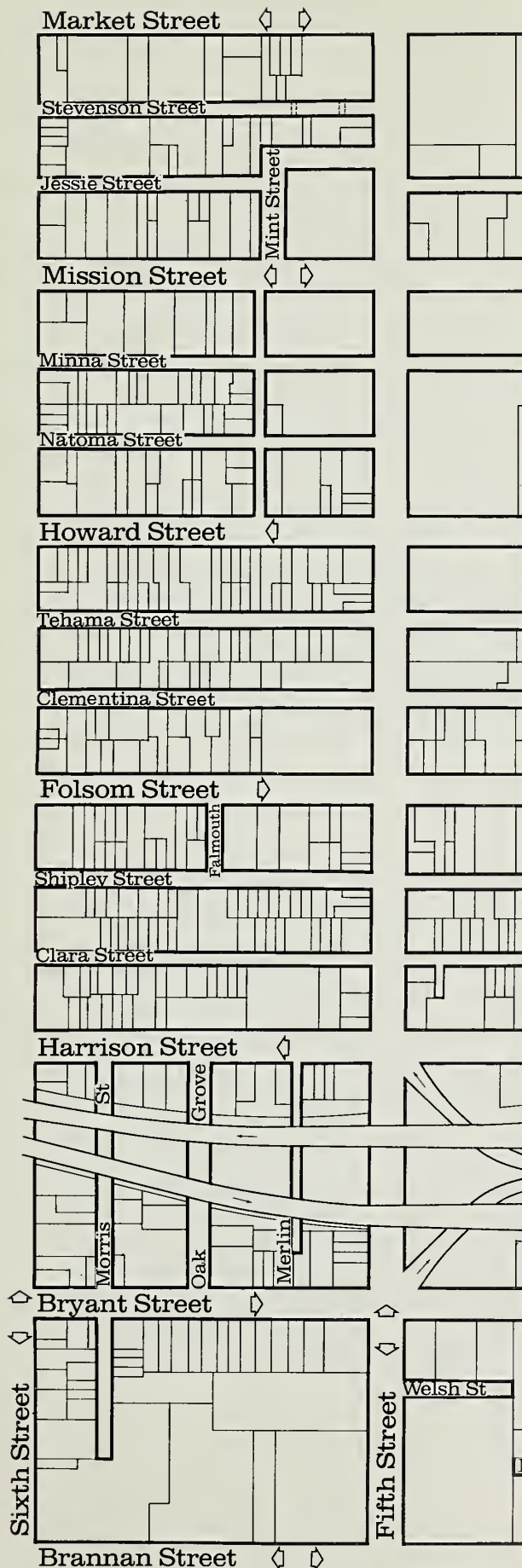
** First YBC EIR Supplement considered CB-1 and SB-4 only.

*** Convention Center block land area only; the building area of the convention center is greater because it includes a mezzanine level.

**** All of the four YBC FEIR Alternatives erroneously referred to 278 dwelling units as existing on SB-1. The portion of the Silverview Apartments that is on SB-1 within YBC actually contains meeting facilities and not dwelling units.

These units have not been shown in this Table and are not included in calculations for the Main Program; they have been subtracted out of all comparative calculations for the YBC FEIR alternatives.

NOTE: Alternatives C and D do not include the George R. Moscone Convention Center, which has been built since these alternatives were conceived. Should either of these alternatives actually be built, they would include the convention center.



YERBA BUENA CENTER SECOND SUPPLEMENT

LEGEND


-  Housing
-  Subsidized Housing
-  Office
-  Retail
-  Downtown Support
-  Light Industry
-  Institutional
-  Hotel
-  Parking
-  Parking and Housing
-  Parking and Retail
-  Vacant
-  * Amusement/Recreation/Entertainment/
Cultural/Retail
-  Park, Open Space
-  Redevelopment Area Boundary

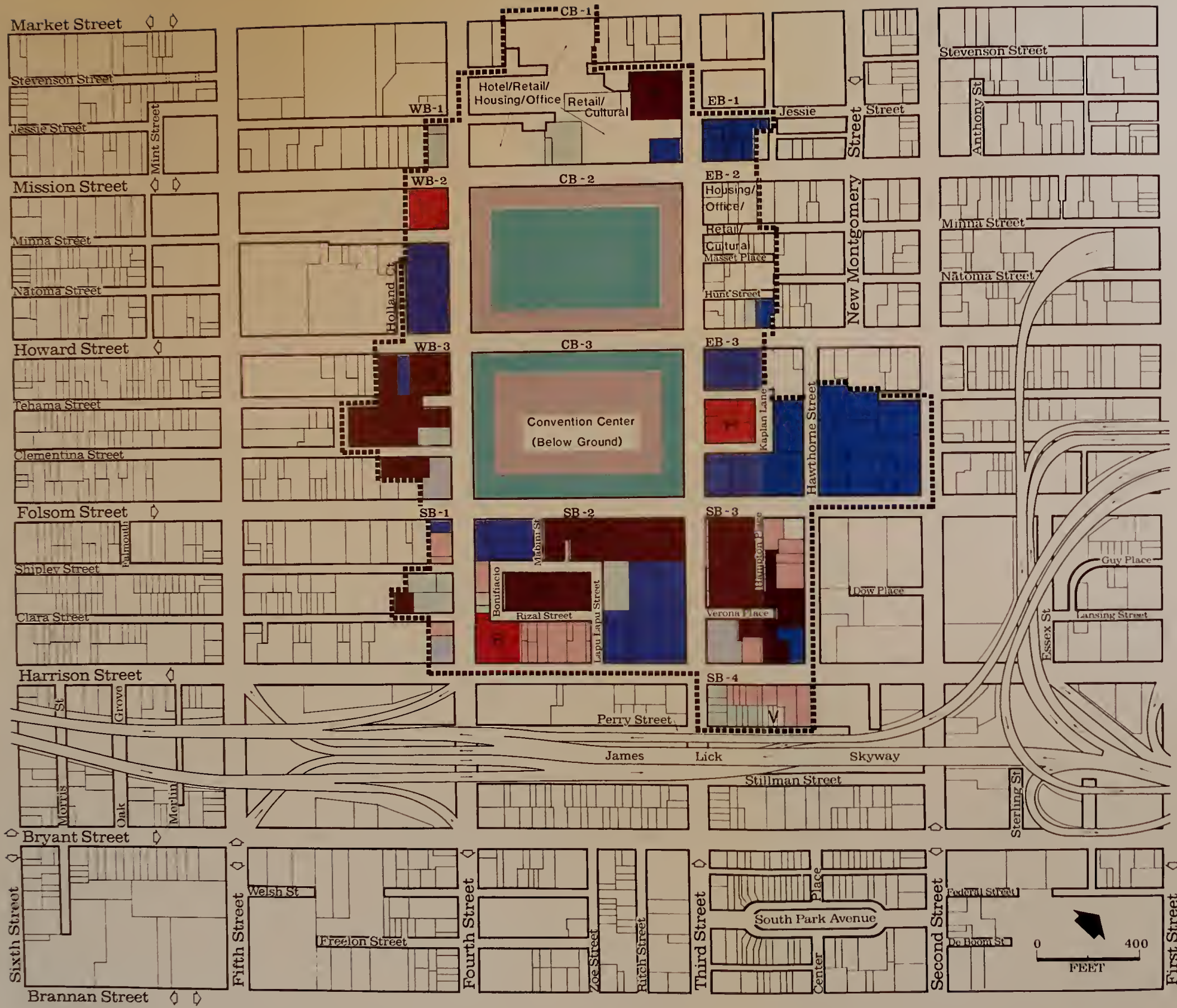
FIGURE 8:

Land Uses Proposed Under
the Main Program

SOURCE:

Environmental Science Associates, Inc., using information provided
by the San Francisco Redevelopment Agency.

* Land use placement on CB-2 and CB-3 is approximate and reflects RFO
requirement of 60% open space on CB-2 and 40% open space on CB-3.



YERBA BUENA CENTER SECOND SUPPLEMENT

LEGEND

- Housing
- Subsidized Housing
- Office
- Retail
- Downtown Support
- Light Industry
- Institutional
- Hotel
- H Parking and Housing
- R Parking and Retail
- V Vacant
- *Amusement/Recreation/Entertainment/Cultural/Retail
- Park, Open Space
- Redevelopment Area Boundary

FIGURE 8:
Land Uses Proposed Under
the Main Program

SOURCE:
Environmental Science Associates, Inc., using information provided
by the San Francisco Redevelopment Agency.
* Land use placement on CB-2 and CB-3 is approximate and reflects RFR
requirement of 60% open space on CB-2 and 40% open space on CB-3.

more total square feet of floor area than anything proposed in the YBC FEIR; these latter two uses have fewer square feet of floor area than do any of the YBC FEIR alternatives. All other proposed Main Program uses are within ranges considered for all of YBC in the YBC FEIR.

Buildings that have been constructed since the completion of the 1978 YBC FEIR are: Phase I of Woolf House (112 of its total of 182 subsidized dwelling units have been completed) on WB-3; TODCO / Los Caballeros Dimasalang housing (147 subsidized dwelling units) on SB-2; Yerba Buena West, 300,000 sq. ft. of office space on WB-2; and the George R. Moscone Convention Center (650,000 sq. ft.) on CB-3. Under the Main Program, these uses are considered to be existing uses, in addition to those described on pp. 39-40 of the YBC FEIR. Several uses in Table 1, p. 32, are listed as "under construction." These are: the Convention Plaza Bldg., 339,000 sq. ft. of office space on EB-3; and Woolf House Phase II, 70 subsidized dwelling units on WB-3. All of the Central Blocks would contain "unreviewed uses," uses not previously analyzed in the YBC FEIR or in the First YBC EIR Supplement. A complete listing of unreviewed uses is given in Table 3, below.

Central Block 1

CB-1 would be the most intensively developed block in YBC under the Main Program. The roughly two million total square feet of uses (not including the 950 spaces of accessory parking, see Table 1, p. 32) could be placed in one or more towers up to 400 ft. high. Two open plazas, one at the Market St. entrance to YBC and one at Mission St., east of St. Patrick's Church, may occur on CB-1. The plaza entries would complement the pattern of public plazas which enhance the north side of Market St., and would extend the pattern onto Mission St. A glassed galleria connecting the two plazas would provide an all-weather mid-block pedestrian passage-way between Market and Mission Sts. The galleria would contain specialty shops, perhaps on several levels. It would terminate in the Mission St. plaza to be built along the east side of St. Patrick's Church.

TABLE 3: PREVIOUSLY UNREVIEWED USES IN THE PROPOSED MAIN PROGRAM FOR YBC
(gross sq. ft. of floor area unless otherwise noted)

Central Block 1

- Accessory Parking 950 spaces
(total on block)
- Cultural 10,000 sq. ft.
(total on block)

Central Block 2

- Accessory Parking 1,500 spaces
(total on block)
- Cultural 120,000 sq. ft.
(total on block)
- Underground Ballroom and Exhibit Room 100,000 sq. ft.
(total on block)

Central Block 3

- Retail/Commercial 30,000 sq. ft.
(total on block)
- Cultural 10,000 sq. ft.
(total on block)
- Amusement/Recreation Entertainment 120,000 sq. ft.
(total on block)

Eastern Block 2

- Cultural 200,000 sq. ft.
(total on block)

Southern Block 2

- Housing 320 market-rate dwelling units
(additional units)
- Public Parking 800 spaces
(total on block)
- Retail/Commercial 35,000 sq. ft.
(total on block)

SOURCE: San Francisco Redevelopment Agency

The Church would become the architectural focal point of CB-1's south edge. The Church and Rectory, the Mercantile Bldg., and the Jessie St. substation would be preserved. New construction would complement these historic buildings in design and materials. A new setting created by open plazas would provide a spatial frame for the Church that is at a scale appropriate to its mass and height. The overall effect would be intended to be similar to a European cathedral square.

Central Block 2

CB-2 would be the connecting block between CB-1 and the convention center on CB-3. CB-2 would be designed to draw visitors into it and through it to the convention center. The plaza facing St. Patrick's across Mission St. would create a transition between CB-1 and CB-2. The 60% of open space required (RFQ, p. 21) would be devoted to pedestrian plaza(s) and gardens. Pedestrian walkways may cross Mission St. both at-grade and by bridges connecting upper levels of commercial and retail buildings in CB-1 and CB-2. The at-grade crossing from the St. Patrick's Plaza to CB-2 would join with CB-2's open central plaza, which would stretch over CB-2's length from Mission St. to Howard St. CB-2's central plaza would be classical in design, built along a strong central axis anchored by St. Patrick's Church at one end and the Moscone Convention Center at the other. One possible design of CB-2 would have the plaza gradually rise in a series of steps and terraces from St. Patrick's on CB-2 to the level of the roof of the convention center on CB-3. The graduated series of terraces could create smaller gathering places within the central plaza. It is also possible that CB-2's central plaza would be all on one grade. In this case, smaller gathering places could be created with the use of benches, trees or paving material. Minor cross-axes would intersect CB-2's central plaza and mid-block entries on Third and Fourth Sts. to smaller gardens and plazas to be built among the retail and commercial buildings flanking the central axis. The gardens could represent a variety of landscape styles such as the traditional English garden with lawn and trees or an oriental meditation garden. A small, hard-surfaced plaza could be built for intimate viewing of entertainments such as juggling or dancing. A children's garden could provide space for active play.

The of cultural space on CB-2 could be a performance theater or a museum; recreation and entertainment uses may include a health club, ice rink, live entertainment facilities and restaurants. The block would have an underground ballroom / exhibit space. Retail commercial uses on the block would probably include shops. There would be no subsurface connections between the ballroom/exhibit room and CB-1 or CB-3. Terraces, balconies, and elevated walkways would provide opportunities for viewing activities in the central plaza below.

Central Block 3

Since the George R. Moscone Convention Center on CB-3 is almost entirely underground, sufficient space exists on its roof for other uses. These uses would be primarily visitor-oriented. The RFQ requires that 40% of the area be open space. The remaining 60% could contain restaurants, cafes, night clubs and a cinema center as part of the general land use categories shown in Table 2, p. 35. It has been proposed that a cinema center be in a dome-shaped structure capping the convention center. The proposed cinema center dome could provide a visual terminus to the CB-2's central axis.

Peripheral Blocks

The blocks or portions of blocks within YBC located around the Central Blocks on the eastern, southern, and western sides comprise the "peripheral blocks" of YBC. In the Main Program, the undeveloped portions of the Eastern Blocks, located on the east side of Third St., would contain uses similar to those in the Central Blocks. EB-1, -2 and -3 would have a combination of office space, market-rate housing, retail commercial uses (shops and stores) and cultural space (see Table 2, p. 35). Of these blocks, only EB-2 would contain uses that have not previously received environmental review.

EB-2 would contain retail commercial space (10,000 sq. ft. of shops and stores), office space (700,000 sq. ft.), and market-rate housing (300 units). The 200,000 sq. ft. of cultural space planned for the block, possibly a major museum, would be an unreviewed use (see Table 3, p. 40).

The Eastern blocks would form a strong edge parallel to CB-2's central axis. Their mid-rise height would contribute to the central plaza's urban ambiance while creating a transition in uses and scale between the high rises in the financial district and older, lower buildings south of Market St.

The western edge of YBC would be bounded primarily by existing buildings whose present uses would be retained. None of the western blocks contain unreviewed uses. WB-1, containing the Downtown Community College Center, is fully developed. WB-2 contains an existing parking garage and the Yerba Buena West office building. WB-3 contains subsidized housing for the elderly: the Clementina Towers (276 units) and Woolf House (112 units). An additional 70 units are under construction as Woolf House Phase II, and 95 more units are proposed. The block also contains an office building, a gas station, and a health clinic.

In the southern blocks (SB-1, -2, -3 and -4), a combination of light industrial uses, office space, neighborhood-serving retail commercial services, housing (both subsidized and market-rate), and a private high school would be provided. SB-2 would contain unreviewed uses.

SB-2 has been the subject of two amendments of the Redevelopment Plan (concerning location of housing), which permit up to 470 subsidized dwelling units in two apartment projects. One apartment project containing 147 subsidized dwelling units has been completed; 200 additional subsidized dwelling units are planned to be constructed. Office space (664,000 sq. ft. total) would be provided in three buildings; two of these, containing 584,000 sq. ft. of office space, now exist. The unreviewed uses for the block would be 320 market-rate units, 35,000 sq. ft. of retail/commercial space, possibly neighborhood-serving uses, such as a grocery, and some public parking (800 spaces). The market-rate and subsidized housing proposed for SB-2 and SB-3 would be directly across from the convention center along Folsom St.

A complete listing of unreviewed uses (those uses which have not been analyzed in either the YBC FEIR or the First YBC EIR Supplement) is given in Table 3, below.

C. VARIANTS

Four variants to the Main Program are analyzed in this document: two for uses on CB-1, one for CB-2 and one for EB-2. The amount of housing and office space on each of these blocks constitute the major differences between the variants and the Main Program. One variant also includes additional retail space which would become part of a department store (about the same size as Liberty House in Union Square or Nieman Marcus, now under construction). Table 4 lists the variants, and indicates changes from the Main Program. The uses listed are complete totals for each block; they include uses which would not change under the variant.

Each variant consists of uses and square footages for one YBC block only. This Supplement considers the effects of each variant block in comparison with the Main Program uses for that block. The effects of each variant are discussed only where differences in impacts from the Main Program would occur. For ease of analysis, each variant is considered separately. Combinations of two or more of the one-block variants are not discussed in this document. However, the analysis of the variants is set up so that one may determine the effects of a combination of variants.

TABLE 4: VARIANTS TO THE PROPOSED MAIN PROGRAM FOR YBC (gross sq. ft. of floor area unless otherwise noted)

<u>Use</u>	<u>Variant</u>	<u>Main Program (for comparison)</u>
Variant A: Reduced-Housing/Increased-Office-and-Retail Variant for CB-1		
Office Space	*900,000 sq. ft.	500,000 sq. ft.
Office Space	90,000 sq. ft. (rehab)	90,000 sq. ft.
Hotel	2,200 rooms	2,200 rooms
Retail/Commercial	*290,000 sq. ft.	200,000 sq. ft.
Housing	*200 dwelling units	500 dwelling units
Institutional	Church & Rectory	Church & Rectory
Cultural	10,000 sq. ft.	10,000 sq. ft.
Accessory Parking	950 spaces	950 spaces
Pedestrian Conc./Plaza	71,000 sq. ft.	71,000 sq. ft.
Variant B: No-Housing Variant for CB-1		
Office Space	500,000 sq. ft.	500,000 sq. ft.
Office Space	90,000 sq. ft. (rehab)	90,000 sq. ft.
Hotel	2,200 rooms	2,200 rooms
Retail/Commercial	200,000 sq. ft.	200,000 sq. ft.
Housing	*None	500 dwelling units
Institutional	Church & Rectory	Church & Rectory
Cultural	10,000 sq. ft.	10,000 sq. ft.
Accessory Parking	950 spaces	950 spaces
Pedestrian Conc./Plaza	71,000 sq. ft.	71,000 sq. ft.
Variant C: Housing Variant for CB-2		
Housing	*300 dwelling units	None
Retail/Commercial	90,000 sq. ft.	90,000 sq. ft.
Cultural	120,000 sq. ft.	120,000 sq. ft.
Underground Ballroom and Exhibit Room	100,000 sq. ft.	100,000 sq. ft.
Amusement/Recreation/ Entertainment	135,000 sq. ft.	135,000 sq. ft.
Accessory Parking	1,500 spaces	1,500 spaces
Pedestrian Conc./Plaza	99,000 sq. ft.	99,000 sq. ft.
Public Park or Plaza	173,400 sq. ft.	173,400 sq. ft.

TABLE 4: VARIANTS TO THE PROPOSED MAIN PROGRAM FOR YBC (gross sq. ft. of floor area unless otherwise noted) (Continued)

<u>Use</u>	<u>Variant</u>	<u>Main Program (for comparison)</u>
Variant D: Increased-Housing/Reduced-Office Variant for EB-2		
Housing	*700 dwelling units	300 dwelling units
Retail/Commercial	10,000 sq. ft.	10,000 sq. ft.
Cultural	200,000 sq. ft.	200,000 sq. ft.
Office	*300,000 sq. ft.	700,000 sq. ft.
Accessory Parking	500 spaces	500 spaces

* Change from Main Program

SOURCE: San Francisco Redevelopment Agency

V. ENVIRONMENTAL SETTING

V. ENVIRONMENTAL SETTING

A. LAND USE, ZONING, AND VISUAL ASPECTS

1. LAND USE

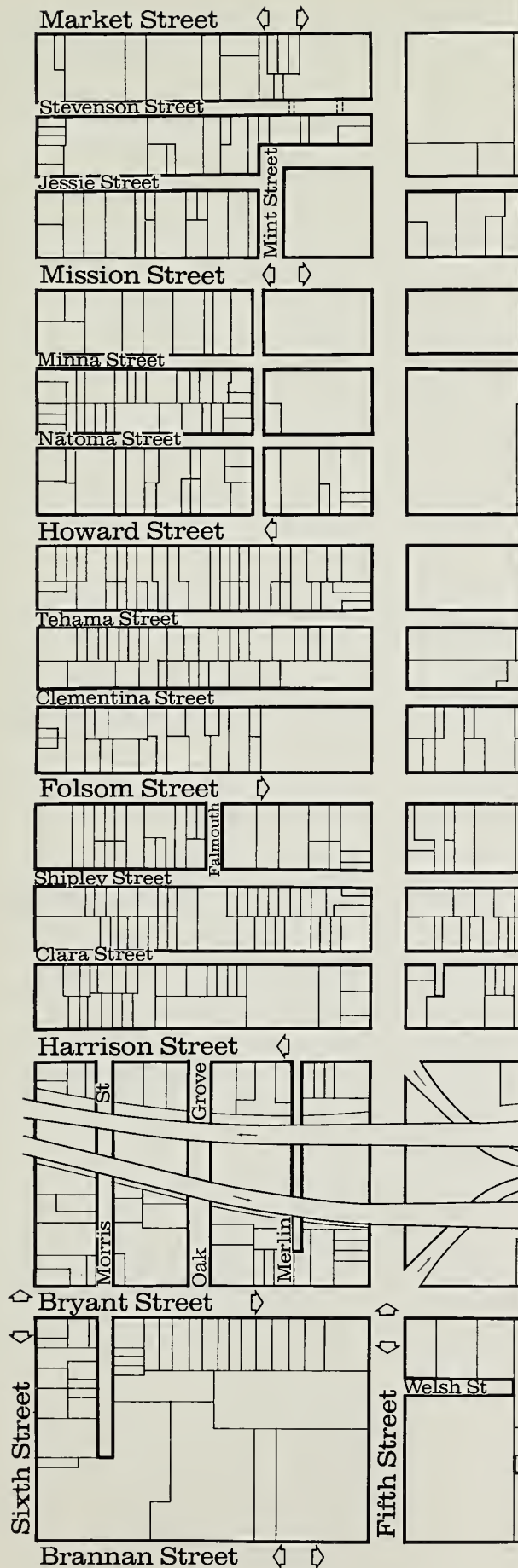
Overview of Land Uses within YBC

An overview of land use in YBC is detailed on pp. 64 - 68 of the YBC FEIR; this information is updated and incorporated below. A map of the existing land uses appears in Figure 9. The total YBC land area, excluding the area devoted to streets, is about 2,660,000 sq. ft./1/. Parking (public and private) covers more land area in YBC than any other existing use. The YBC area is in a state of transition; there are a number of concurrent construction, demolition, and rehabilitation projects under way (the Convention Plaza Bldg. on EB-3, the Arcon-Pacific Hotel on CB-1, and Woolf House Phase II on WB-3).

Land Uses by Blocks in YBC












The land uses by blocks are described in the YBC FEIR on pp. 68 - 72. This information is summarized and updated as follows.

There has been little change in land use on CB-1 from that described in the YBC FEIR. About 35% of CB-1 is open and used for temporary parking lots. There is an exposed basement at the northeast corner of Mission and Fourth Sts. The GSA Bldg. is vacant. The Jessie St. Substation is currently used for storage. The Mercantile Bldg., a ten-story office building currently being renovated, is located at the corner of Third and Mission Sts. St. Patrick's Church and Rectory are located on Mission St. (Several of these structures are architecturally significant and are discussed as part of the Archeologic and Historic Aspects Setting, pp. 97 - 101). Excavation work for



YERBA BUENA CENTER SECOND SUPPLEMENT

LEGEND

-  Housing
-  Office and Retail
-  Downtown Support
-  Light Industry
-  Parking
-  Temporary Parking
-  Institutional
-  Office, under construction
-  Vacant Land
-  Vacant Building
-  Temporary Garden

----- Redevelopment Area Boundary

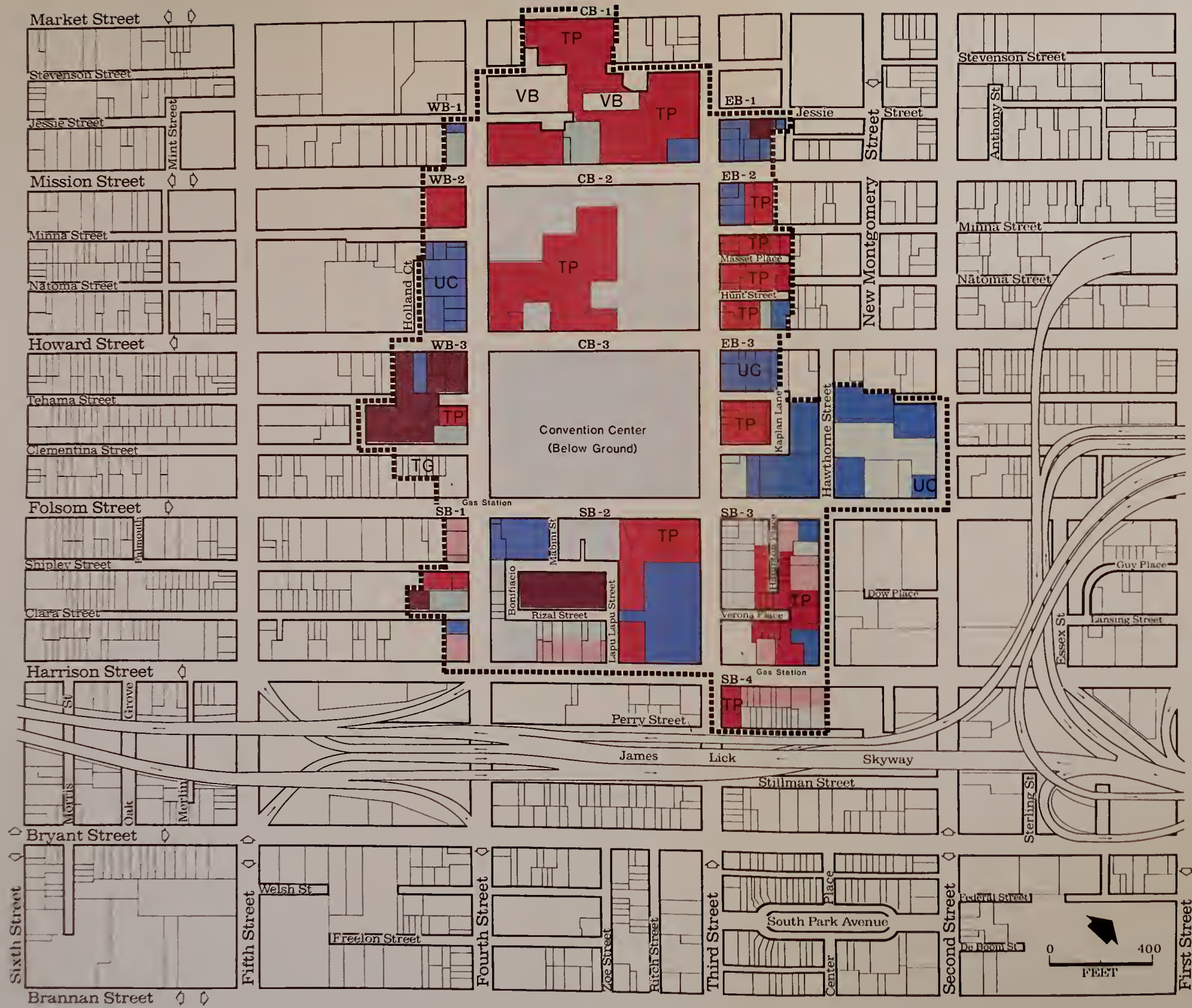
FIGURE 9:

Existing Land Use Within YBC

SOURCE:

Environmental Science Associates, Inc.

* The boundary was changed in 1981 to include the GSA site at 49 Fourth St. on CB-1.



YERBA BUENA CENTER SECOND SUPPLEMENT

LEGEND

- Housing
- Office and Retail
- Downtown Support
- Light Industry
- Parking
- TP Temporary Parking
- Institutional
- UC Office, under construction
- Vacant Land
- VB Vacant Building
- TG Temporary Garden

..... Redevelopment Area Boundary

FIGURE 9:
Existing Land Use Within YBC

SOURCE:
Environmental Science Associates, Inc.
* The boundary was changed in 1981 to include the GSA site at 49 Fourth St. on CB-1

the Arcon-Pacific hotel is presently under way on an approximately 34,000-sq.-ft. site located northwest of the Mercantile Bldg. and northeast of the Jessie St. Substation.

CB-2 contains about 454,000 sq. ft. of land area. Its land uses have changed from those described on p. 68 of the YBC FEIR. CB-2 was formerly an open expanse containing pits formed by remaining basements. CB-2 currently provides parking on the southeastern half of the block for the users of the George R. Moscone Convention Center across Howard St. Stockpiled construction materials, stored construction equipment and vacant open spaces are found along the northwestern portion of the block. Most of the block is fenced (with wire chain and wood). The "Independent Grocery", a single-story, wooden temporary retail structure, is located on Fourth St.

On CB-3 the George R. Moscone Convention Center, completed in late 1981, occupies the entire block. The convention center is built almost completely underground; its Howard St. entrance and landscaped roof rise 25 ft. above the grade. Portions of the lobby, roof and ventilation vents are visible to pedestrians in the area.

There have been no changes in land use on EB-1 since publication of the YBC FEIR. Of the five buildings on EB-1, a residential structure (the Blumenthal Bldg.) is vacant; the Jessie Hotel and two five-story buildings are partially vacant. The block has approximately 34,000 sq. ft. of land, of which 93% would probably be made available for new construction following demolition of the existing buildings. The five existing buildings have a combined floor area of 100,000 sq. ft.

Land use on EB-2 is essentially unchanged from that described in the YBC FEIR. Most of EB-2 has been or probably would be cleared. Two buildings would be retained: the 4,400-sq.-ft. former Station 35 firehouse and a 21,000-sq.-ft. renovated retail store on 7,300 sq. ft. of land area. At the

corner of Mission and Third Sts., a nine-story former office building and a two-story building are only partially used. Most of the block is occupied by three public parking lots that front on Third St. A one-story automobile repair shop structure is northwest of the firehouse.

The Convention Center Plaza building, currently under construction, is the only land use on EB-3 not covered in the YBC FEIR. Two office buildings on EB-3 were developed along Hawthorne St. under agreements with the Redevelopment Agency: the First Interstate Bank office building with 104,000 sq. ft. of floor space and the Arcon General Electric Bldg. with 93,000 sq. ft. of floor space and 35,000 sq. ft. of underground private parking. There are also four low- and mid-rise (two to five stories) buildings.

Land uses on SB-1 are the same as described in the YBC FEIR. They include four two-story buildings of which three are office buildings and one is the Senior Activities Center. There are also two public parking lots and a third which provides parking for the Senior Activities Center.

There are a total of about 13 buildings on SB-2. Only one, TODCO / Los Caballeros Dimasalang House, was constructed since publication of the YBC FEIR. All of them are two-story structures except for the AT&T Long Lines Bldg. which is six stories high, the subsidized housing structure, (eight stories high), and the Pacific Telephone Bldg. (seven stories).

Land uses on SB-3 and SB-4 have not changed from those discussed in the YBC FEIR. These uses include several low-rise buildings used for offices, automotive repair, light industry, and retail stores. About 70% of SB-3 is occupied by a public parking lot.

As discussed in the YBC FEIR, WB-1 is occupied by the Downtown Community College Center and the one-story Fox Hardware Store which is located immediately north of the College.

Uses on WB-2 include a portion of a public parking structure between Mission and Minna Sts. (the owner of the parking garage has an owner-participation agreement with the Redevelopment Agency) and the recently constructed six-story Yerba Buena West Office Bldg.

WB-3 includes three high-rise subsidized housing buildings (totaling 388 units) with an addition to Woolf House (containing 70 units) presently under construction. Other uses include a two-story office building on Howard St., a two-story City clinic operated by the San Francisco Department of Public Health, and a service station. Only Woolf House was constructed since the completion of the YBC FEIR. A vacant lot, formerly used for vegetable gardens by elderly residents of Woolf House and Clementina Towers, will be developed as subsidized elderly housing, Woolf House Phase II (70 units).

The remainder of YBC is in use as public streets. Of this, about 875,000 sq. ft. are occupied by the grid of 82.5-foot-wide streets (width includes sidewalks), such as the north-south Second, Third, and Fourth Sts. Other side streets vary in width from 30 to 50 ft. The total combined paved surface area of YBC principal and side streets is about 1,160,000 sq. ft.

Land Use In The Vicinity of YBC/2/

For the purposes of this report, a South of Market study area was defined which contains land uses in the vicinity of YBC most likely to be affected by potential development pressures associated with YBC./2/ This area is bounded by: Market St. on the north; the James Lick Freeway on the south (elevated freeways tend to be natural socioeconomic and land use barriers in cities); Russ St. and the imaginary extension of Russ St. through the center of the blocks between Sixth and Seventh Sts. on the west; First St. and the outbound bus ramp from the Transbay Terminal on the east. Since the YBC Redevelopment Project Area itself was not included in the analysis, the study area has two distinct parts: the subarea east of YBC, and the subarea west of YBC.

The eastern subarea consists primarily of office uses; most of the office buildings are mid-rise (four to six stories tall).^{/3/} The eastern subarea is part of a larger district, extending from YBC to the Embarcadero, which has experienced rapid growth of office uses, and which is becoming an extension of the Downtown Office Core. Eighteen office projects are currently (as of February 23, 1982) approved or proposed in this growth district.^{/4/} This growth district is zoned primarily for office and downtown support uses (C-3-0 and C-3-S City Planning Code Use designations). A three-block light industrial land use district (M-1 in the City Planning Code) exists within this eastern growth area just east of YBC's SB-3 and SB-4 (see Figure 11). Office uses predominate in this light industrial land use district, as well,^{/3/} and one of the 18 proposed office projects, the Marathon project at the corner of Second and Folsom Sts., is proposed for this three block area.^{/4/}

The western subarea is a mixed-use area including light industrial, downtown support services, parking, retail and residential uses. Structures are generally two to ten stories and are brick, concrete, or wood frame construction. Retail uses, primarily in street-level floors, include pawn shops, liquor/grocery stores, bars, surplus stores, restaurant equipment, small eating establishments and used-merchandise stores.^{/5/}

Residential hotels make up a substantial portion (perhaps as much as half) of the housing stock in the western subarea. No residential hotels exist on Fifth St. (within one block of YBC), although 25 are clustered around Sixth St. The residential hotels vary in size from two to eight stories and most often have retail commercial uses on the ground floor. Other types of residential structures include two- and three-story wood frame apartments and a few larger apartment buildings. The larger apartment buildings (10 to 12-story towers) are in three apartment complexes, the Alexis Apartments, the Clementina Towers and the Silvercrest Residence, at 390 Clementina St., 320 Clementina St. and 133 Shipley St., respectively. These three complexes are housing for the elderly and physically handicapped persons, and are directly adjacent to or within one block of similar complexes inside YBC (Woolf House Apartments, and TODCO / Los Caballeros Dimasalang Apartments). The small

wood-frame residences are generally along alleys and side streets that cut through blocks between the major streets. These residences are often interspersed with other land uses (light industrial and downtown support), although some side streets, notably Natoma, Shipley and Harriet Sts., contain pockets of strictly residential uses./5/ Filipinos are the most numerous ethnic group in the western subarea (see Social Characteristics in the Vicinity of YBC, p. 67), and it appears that much of the smaller wood-frame housing in the southern parts of the subarea is inhabited by this group./5/

Small retail-commercial uses in the western subarea include barber shops, groceries and small markets, liquor stores, restaurants and cafes, smoke shops, used-merchandise stores, thrift stores (Good Will and Salvation Army), and pawn shops. Small restaurants and cafes occur primarily along Fifth St. Barber shops, liquor stores and used merchandise stores tend to be clustered around Sixth St. and the near vicinity. Roughly 10 pawn shops comprise a small pawn shop district on Sixth St. between Market and Mission Sts. There are eight small grocery stores and two coin-operated laundries in the western subarea./5/ Two neighborhood-serving retail commercial uses (Liquor and Grocery at 40 Fifth St. and Giannini's Food Fair at 75-79 Fifth St., both north of Mission St.) are within one block of YBC./5/

The Existing and Projected Demand for Development Space in the South of Market Area.

Quantification of property real estate trends and precise prediction of these future market trends is not possible. A general overview of existing trends in the western subarea is presented below.

The demand for housing in San Francisco has risen in the last decade. While San Francisco's population declined in the last ten years, the number of households increased. As stated in "Report of the Citizen's Housing Task Force" (July 29, 1981), much of the increase is due to the immigration of new workers seeking jobs in the growing office and service sectors. "A greater proportion of new office workers employed in San Francisco who also choose to reside here are managers and professionals and have substantially higher

incomes than the average office employee of the past. Thus the intense demand pressure in the San Francisco housing market today stems not simply from an increase in the number of new households competing for shelter, but from the fact that a growing proportion of these new households have incomes which are substantially above that of the residential population in place."/6/ With 8.7 million sq. ft. of new office space approved or under construction in San Francisco as of November, 1981, and proposals for an additional 9.3 million sq. ft. (excluding YBC) in the review process, (representing a total increase of almost 30% over present downtown office floor area) (see Appendix A, Table A-1, p. 237)/6/, the demand for housing by downtown office workers will continue to grow in the next decade. This rising demand, combined with other market forces, such as high interest rates and rising construction costs, serves to escalate housing prices, raise rents, and lower vacancy rates.

An area of low-intensity use in close proximity to a dynamic downtown has the potential to house many downtown office workers. A study of "South of Market" by San Francisco Planning and Urban Research Association (SPUR, June, 1981) proposed a rezoning of all of South of Market that could accommodate more than 15,000 housing units, "enough units to satisfy at least three-quarters of the demand generated by new office development in the next ten years." Many structurally sound wood-frame houses, including some Victorians (currently occupied primarily by low-income residents) on side streets in the western subarea, have rehabilitation potential.

As available parcels for office development in the downtown core dwindle, the area west of YBC may also become attractive to office developers. Some older manufacturing and warehousing buildings in the area have been recently refurbished for office use. While the City Planning Code designates some parcels for residential use, the area is primarily C-3-S (Downtown Support) and M-1 (Light Industrial), with some C-3-R (Downtown Retail) and C-3-G (Downtown General Commercial). Office development could occur in these C-Districts, although at a lesser intensity than allowed in the downtown core. Section 210.3 of the City Planning Code states that the C-3-S District "has for the most part been underdeveloped in the past, and opportunities exist for major developments of new uses covering substantial areas."

Excluding the YBC project, about 4.5 million sq. ft. of office space have been approved and another 5.6 million sq. ft. (not including the 153-acre Southern Pacific Mission Bay project) has been proposed south of Market St./4/ It should be noted that all of this office space, with the exception of two projects (one on Tenth St. and one on South Van Ness), is planned for the office growth area immediately east of YBC and for areas south of the James Lick Freeway. No offices are proposed for the area immediately west of YBC./4/

The western subarea has received little new housing development, in spite of the housing pressures described above (see Sales Trends, following). While some rehabilitation is evident, other buildings are vacant; many occupied structures appear run-down and possibly in violation of building codes. The area lacks improved green open spaces, recreational facilities, a large grocery store, and other neighborhood-serving retail uses often found in close proximity to residential neighborhoods. The mixing of manufacturing and machine shops with residential may also tend to discourage potential housing developers from considering the area a viable location for new housing construction.

The area along Sixth St. between Folsom and Market Sts. is commonly known as "Skid Row." According to the SPUR South of Market Study/7/, p. 19, this area has become the habitat of transients, unemployed persons and those suffering from alcoholism. This largely male and elderly community lives in the residential hotels that surround Sixth St. While the actual number of these disadvantaged and unemployed persons is probably small, their presence contributes a sense of insecurity to the surrounding environment./7/ This image may be responsible for discouraging development in the vicinity of Sixth St.

Sales Trends

To determine if there has been recent residential and residential-serving real estate speculation in commercial properties in the subarea west of YBC, the property transactions records of the Assessor's Office were researched for the years 1967-1981. Of 160 total parcels in the study area containing residential and neighborhood-serving retail uses, 32 were selected at random. It was hypothesized that more property transactions in recent years would demonstrate greater investor interest in the area. The results of the survey, shown in Table 5 below, illustrate that property transactions varied greatly year to year. Overall, transactions in the last five years were slightly more frequent than the 1972-76 period, and slightly less frequent than during the 1967-1971 period. The data do not indicate a sharp increase in property transactions in recent years. Based on these data, the western subarea's residential and neighborhood-serving retail properties have not as yet been subject to speculation.

2. LAND USE DESIGNATIONS AND ZONING

Overview of Land Use Designations for the YBC Area

Development within the YBC Redevelopment Project Area is regulated by the Official Redevelopment Plan for the Yerba Buena Approved Redevelopment Project, which is hereby incorporated by reference. Development in YBC must conform to the Redevelopment Plan, but is not required to conform with City zoning regulations. YBC contains the following Redevelopment Plan Land Use Districts: A, Downtown Office (EB-1 and part of EB-2); B, Downtown Retail (CB-1 and WB-1); C, Downtown Support (CB-2, CB-3, part of EB-2, all of EB-3, part of WB-3, and WB-2); D, Housing (part of SB-1, part of SB-2, and part of WB-3). The Central Blocks are also in a "special use" category in the Redevelopment Plan. This permits an exhibit hall, sports arena, hotel and radio and television studios. These categories are described in detail in the

TABLE 5: REAL ESTATE TRANSACTIONS*

<u>Year</u>	<u>Number of Transactions</u>	<u>Turnover Percentage</u>
1967	5	16
68	7	22
69	3	9
70	6	19
71	<u>1</u>	<u>3</u>
1967-71	22	14
1972	4	13
73	3	9
74	2	6
75	4	13
76	<u>3</u>	<u>9</u>
1972-76	16	10
1977	5	16
78	1	3
79	5	16
80	3	9
81	<u>5</u>	<u>16</u>
1977-81	19 <i>out of 32</i>	12

* Based on a random sample of 32 parcels from a list of 160 parcels of residential and neighborhood-serving retail uses located between YBC, Market St., Russ St. (between 6th and 7th Sts.) and James Lick Skyway.

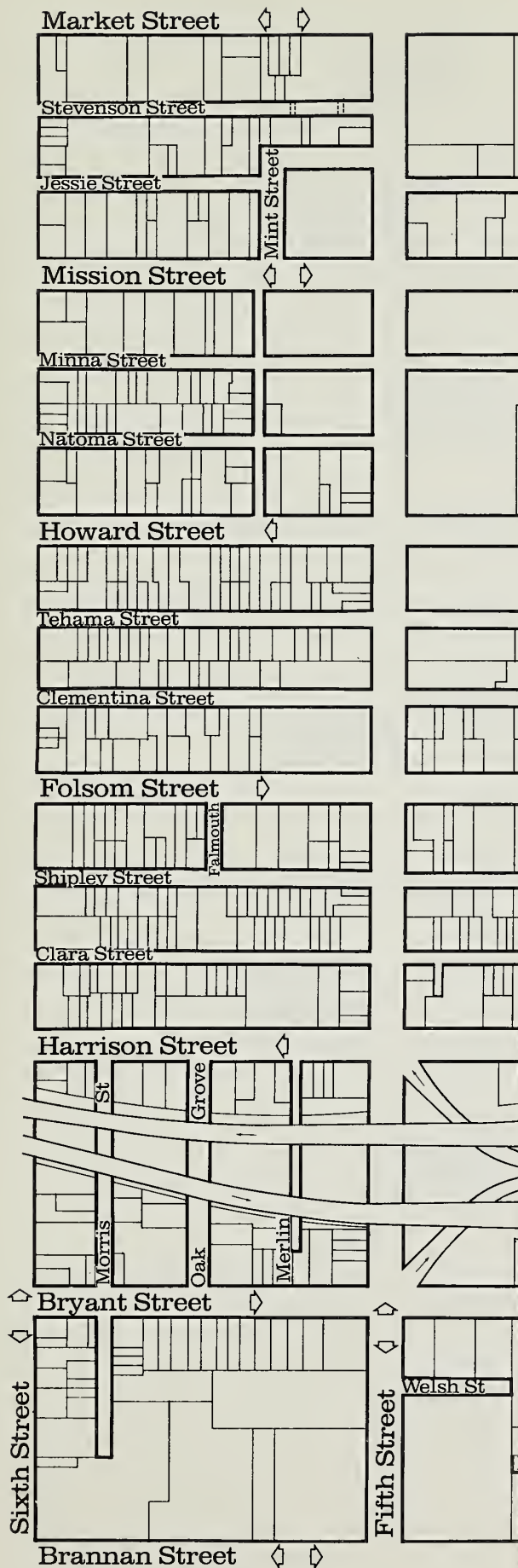
** Percent of 32 parcels sold per year.

SOURCE: Environmental Science Associates, Inc.

Redevelopment Plan. The Redevelopment Plan land use designations are shown in Figure 10. Height districts are the same as those in the City Planning Code (see Figure 11, p. 60), although City Planning Code Bulk Districts do not apply to the Redevelopment Area.

For comparison, YBC contains the following City Planning Code Use Districts: C-3-R, Downtown Retail District (most of CB-1, WB-1); C-3-O, Downtown Office District (EB-1, most of EB-2); C-3-S, Downtown Support District (CB-2, CB-3, EB-3, most of WB-2 and WB-3, small part of EB-2,); M-1, Light Industrial District (SB-1, SB-2, SB-3); and P, Public Use District (part of WB-2 between Mission and Minna Sts., and the GSA Bldg. site on CB-1). City zoning for the YBC area is shown in Figure 12, p. 61. YBC height and bulk districts are shown in Figure 11, p. 60. Use Districts are discussed further in the YBC FEIR, pp. 72 - 73.

The GSA Bldg. site at 49 Fourth St. has been incorporated into the YBC Redevelopment Project Area since the completion of the 1978 YBC FEIR (by amendment of the Redevelopment Plan in November, 1981). Although zoned P-Public under the City Planning Code, uses proposed for the site would be required to conform only to the land use designations in the Redevelopment Plan. Therefore, re-zoning of the site would not be required until Redevelopment Plan land use restrictions expire in the year 2006, but could be accomplished at any time before that year. When the Redevelopment Plan land use restrictions expire, the GSA site would have to be rezoned by the Board of Supervisors from P-Public to C-3-R Downtown Retail.



YERBA BUENA CENTER SECOND SUPPLEMENT

LEGEND

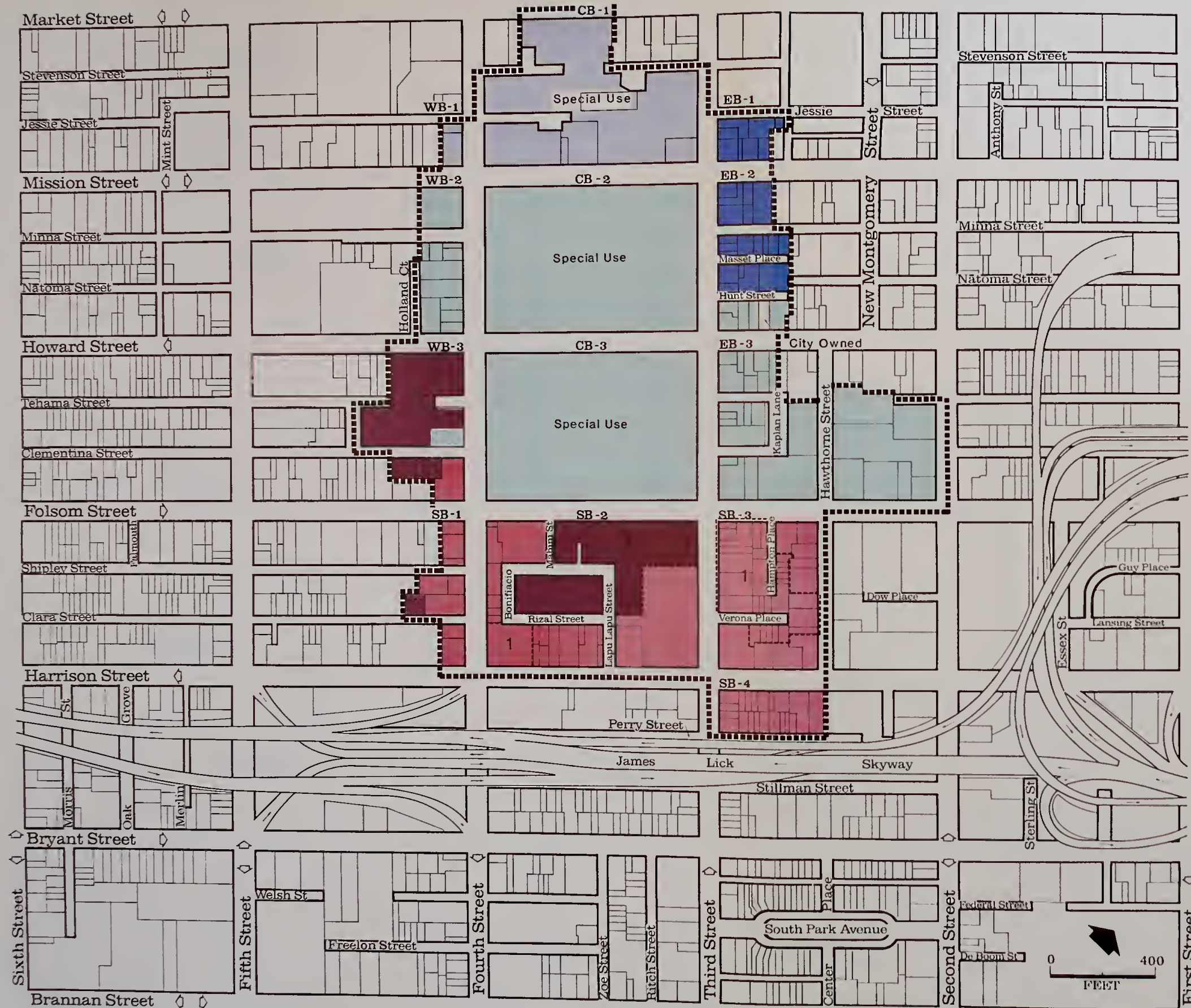
- Housing
- Office
- Retail
- Downtown Support
- Business Services and Light Industry
- 1 Alternate Principal Use Housing
- 2 Alternate Principal Use Business Services and Light Industry

----- Redevelopment Area Boundary

FIGURE 10:
Redevelopment Plan Land Use
Districts in YBC

SOURCE:

YBC Redevelopment Plan



YERBA BUENA CENTER SECOND SUPPLEMENT

LEGEND

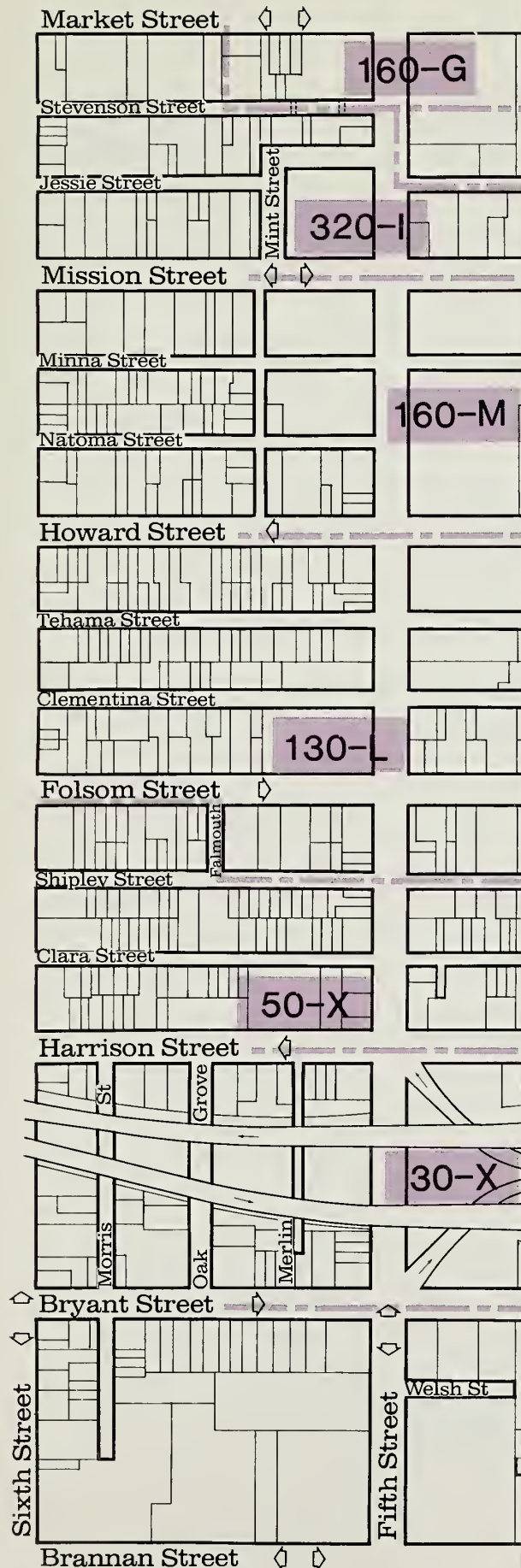
- Housing
- Office
- Retail
- Downtown Support
- Business Services and Light Industry
- 1 Alternate Principal Use Housing
- 2 Alternate Principal Use Business Services and Light Industry

..... Redevelopment Area Boundary

FIGURE 10:
Redevelopment Plan Land Use
Districts in YBC

SOURCE:

YBC Redevelopment Plan



YERBA BUENA CENTER SECOND SUPPLEMENT

LEGEND

Height and Bulk Districts	Height Limit	Height above which Maximum Dimensions apply	Maximum Building Length	Maximum Diagonal Dimension
700-I	700	150 Feet	170 Feet	200 Feet
500-I	500	150	170	200
400-I	400	150	170	200
340-I	340	150	170	200
320-I	320	150	170	200
160-G	160	80	170	200
160-M	160	100	250	300
130-G	130	80	170	200
130-L	130	80	250	300
88-K	88	60	250	300
80-K	80	60	250	300
50-X	50	Bulk limits not applicable.		
40-X	40	Bulk limits not applicable.		
30-X	30	Bulk limits not applicable.		

— Height and Bulk District Boundary

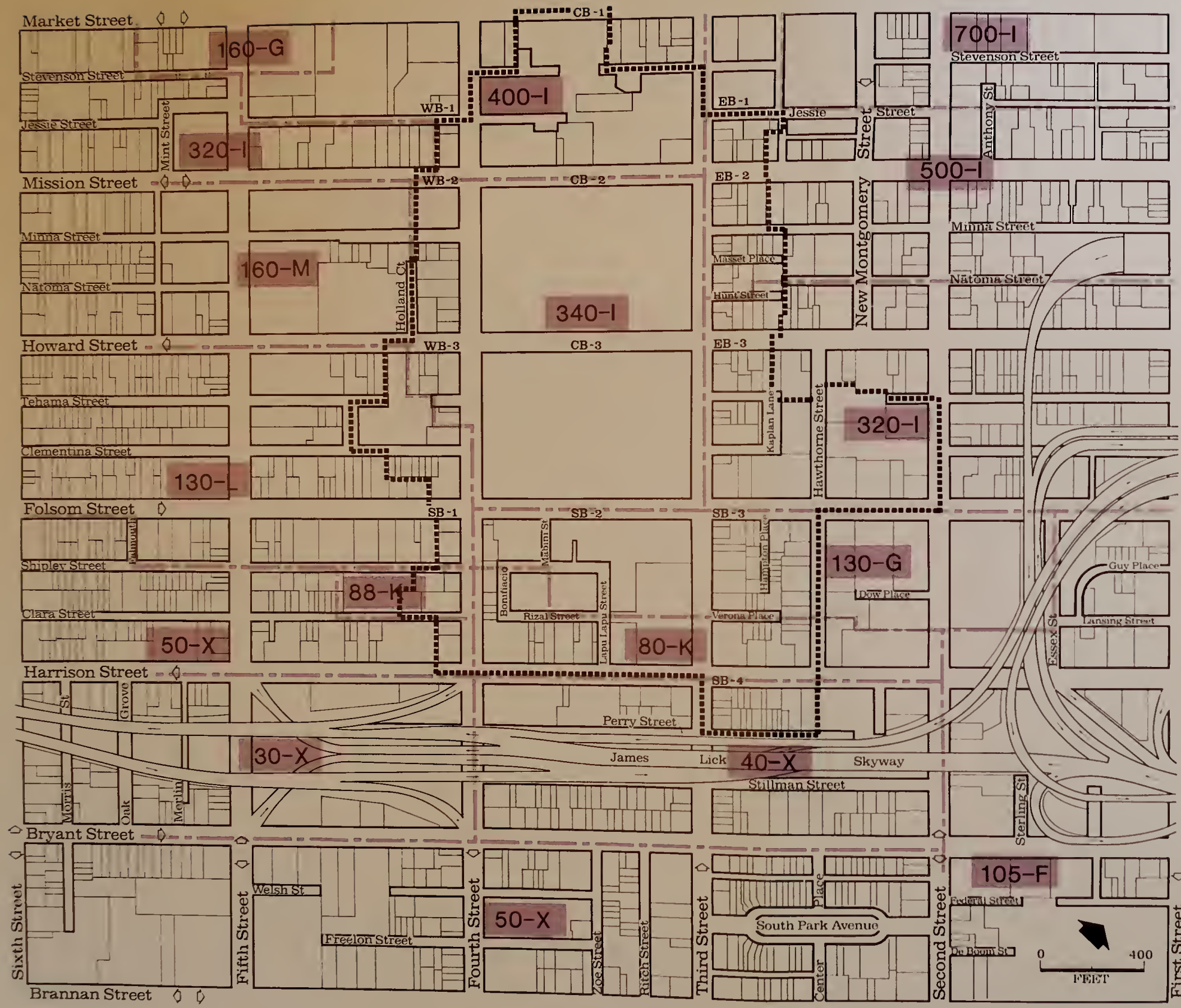
..... Redevelopment Area Boundary

FIGURE 11:

Zoning: Height and Bulk Districts
in YBC and Vicinity

SOURCE:

Environmental Science Associates, Inc., using information
from the San Francisco Planning Code



YERBA BUENA CENTER SECOND SUPPLEMENT

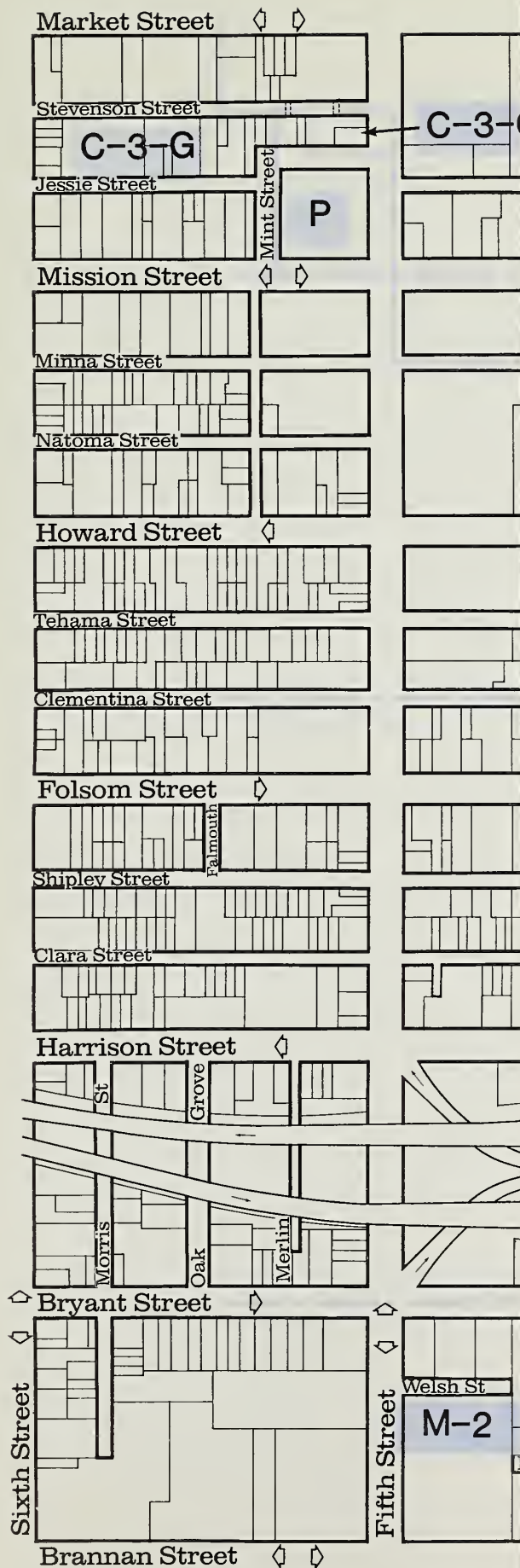
LEGEND

Height and Bulk Districts	Height Limit	Height above which Maximum Dimensions apply	Maximum Building Length	Maximum Diagonal Dimension
700-I	700	150 Feet	170 Feet	200 Feet
500-I	500	150	170	200
400-I	400	150	170	200
340-I	340	150	170	200
320-I	320	150	170	200
180-G	180	80	170	200
180-M	180	100	250	300
130-G	130	80	170	200
130-L	130	80	250	300
88-K	88	60	250	300
80-K	80	60	250	300
50-X	50	Bulk limits not applicable.		
40-X	40	Bulk limits not applicable.		
30-X	30	Bulk limits not applicable.		

- Height and Bulk District Boundary
- Redevelopment Area Boundary

FIGURE 11:
 Zoning: Height and Bulk Districts
 in YBC and Vicinity

SOURCE:
 Environmental Science Associates, Inc., using information from the San Francisco Planning Code



YERBA BUENA CENTER SECOND SUPPLEMENT

LEGEND

C-3-0	Downtown Office District
C-3-R	Downtown Retail District
C-3-S	Downtown Support District
C-3-G	Downtown General Commercial District
M-1	Light Industrial District
M-2	Heavy Industrial District
P	Public Use District
	Zoning District Boundary

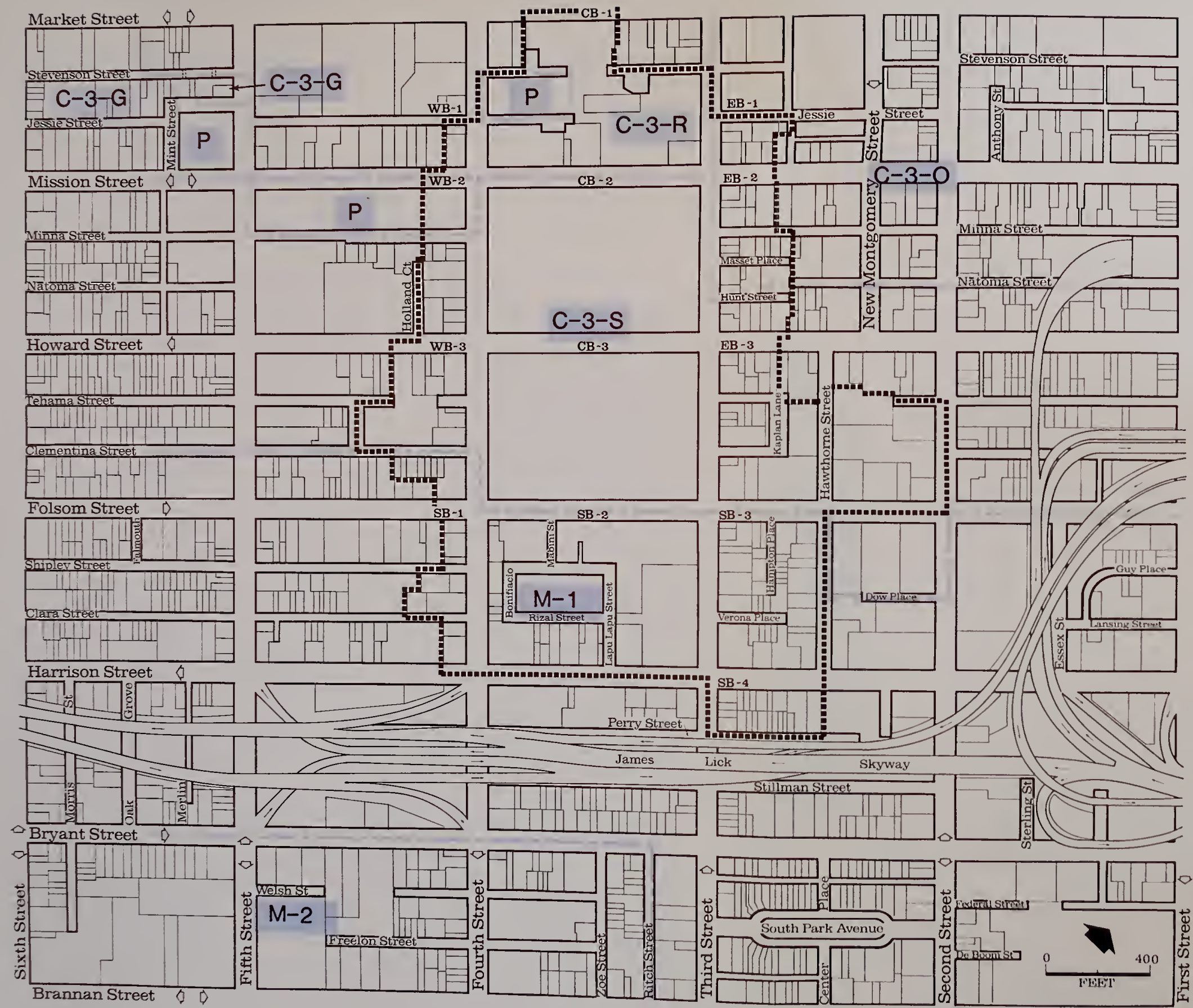
..... Redevelopment Area Boundary

FIGURE 12:

Zoning: Use Districts in YBC
and Vicinity

SOURCE:

Environmental Science Associates, Inc., using information
provided by the San Francisco City Planning Code



YERBA BUENA CENTER SECOND SUPPLEMENT

LEGEND

- C-3-O Downtown Office District
- C-3-R Downtown Retail District
- C-3-S Downtown Support District
- C-3-G Downtown General Commercial District
- M-1 Light Industrial District
- M-2 Heavy Industrial District
- P Public Use District
- Zoning District Boundary

..... Redevelopment Area Boundary

FIGURE 12:
Zoning: Use Districts in YBC
and Vicinity

SOURCE:
Environmental Science Associates, Inc., using information
provided by the San Francisco City Planning Code

3. VISUAL ASPECTS

The visual aspects of YBC are described on pp. 73 - 83 of the YBC FEIR; this information is updated and summarized below. The topography in the YBC area is nearly flat and gently slopes toward the south-southwest. A slight rise occurs in the northern portion of the area; the steepest slope is in the southeastern portion east of Third St. The current visual character of YBC is dominated by the open space and the parking lots in the central blocks and the cleared lots in the adjacent peripheral blocks.

The two northern central blocks (CB-1 and CB-2) have several vacant and parking lots, allowing a viewer to see through these blocks to the south to adjacent surrounding blocks. Because CB-2 has only a small one-story wooden structure, the pedestrians along adjacent blocks (CB-1, WB-1, WB-2, EB-1, EB-2) can clearly view the entrance to the recently completed George R. Moscone Convention Center and its landscaped roof, which is raised about 25 ft. above street level. The openness of the central blocks allows views of downtown high-rise buildings in the Retail and Financial Districts and of hotels on Nob Hill. The foreground of the view toward the north from the central blocks is dominated by the red brick facades of St. Patrick's Church and the Jessie Street Substation. The brick facade of the Mercantile Bldg. also stands isolated from other buildings in the area. The larger buildings near and along Market St. form a backdrop for these structures. Modern high-rise buildings, such as the Bank of America headquarters and the Transamerica Bldg. rise behind older structures; their angular lines contrast with the more intricate lines of the older buildings. The view to the northeast is dominated by the high-rise office buildings of the Financial District. The view to the east and southeast is similarly dominated by the office buildings of the Pacific Telephone Company.

The view towards SB-2 from the central blocks is dominated by the block's three highest buildings: the six-story, ochre-colored AT & T Long Lines Bldg. at the corner of Fourth and Folsom Sts., the eight-story subsidized housing building in the central portion of the block, and the seven-story Pacific Telephone Bldg. at the corner of Harrison and Third Sts. Approximately 35% of

V. Environmental Setting

the block's ground area is used for parking lots (public and private) or is vacant. Smaller two-story buildings located on the Harrison St. house light industrial and office uses. The view further south is partially blocked by the James Lick Freeway and the Bay Bridge approaches. The view to the west (WB-1, -2, and -3) from the central blocks is dominated by the towers of the Silvercrest Residence, Clementina Towers, the construction of Woolf House - Phase II, Yerba Buena West (recently completed office building), the Community College Downtown Center and the multi-storied parking structure on WB-2. Of all the blocks, development on the western blocks is most nearly complete.

The view of SB-1, -2, -3 and -4, and EB-2 consists of parking lots and low-rise two- to three-story concrete office and light industrial buildings. Few have incorporated landscaping.

EB-3 contains a variety of building styles, masses, and heights. Several high-rise office buildings have been completed in the past five years. This is in contrast to the three structures which are older, mid-rise (four to six stories) light-industrial or office uses. One four-story structure is being restored. The white marble facade of the two-story Marine Firemen's Union Bldg. provides pedestrian interest.

The view of EB-1 is dominated by several vacant structures. The pedestrian-level view is of vacant retail stores and restaurants. Only one retail store is operating.

The view to the south at the planned entrance to YBC from Market St. is restricted by a temporary wooden wall constructed by the Redevelopment Agency. The Market St. sidewalk has been paved with red bricks and landscaped with trees. The sidewalk is busy with shoppers and office workers in the daytime, and the street is crowded with transit and vehicular traffic. In contrast, the area is almost deserted at night. The view in either direction up Market St. is dominated by large buildings: to the east, the high-rise offices of the Financial District and, to the west, the older buildings of the Retail District.

From the intersection of Grant Ave. and O'Farrell St. at Market St., there is a view of the older retail buildings along Grant Ave. framed by the two bank buildings of a neo-classical architectural style on either side of the street. Behind the wooden YBC fence, the view to the south is of a foreground which is filled with parked automobiles in the daytime and which is an empty paved lot at night. The Jessie Street Substation is plain when viewed from this point, for its decorative facade cannot be seen. Similarly, the reinforced-concrete rear of St. Patrick's Church appears to be unfinished.

The openness of the central blocks is less impressive when seen from outside points like the Bay Bridge approach, for the whole area has a foreshortened appearance. From high-rise buildings north of Market St., especially those closest to the site, the dominant element is the openness of the central blocks.

FOOTNOTES

/1/ Based on YBC FEIR, p. 64, which states that YBC's total land area (excluding streets) is about 2,600,000 sq. ft., plus the land area of the GSA site, which is about 56,000 sq. ft.

/2/ The areas east and west of YBC could potentially experience indirect development pressures resulting from development of the YBC Main Program. The area north of YBC across Market St. may be affected by development of the proposed Main Program, but this effect is likely to be much less than on the less densely developed South of Market area. In addition, the James Lick Skyway is identified in SPUR's South of Market Study/7/, p. 14, as running "through the center of South of Market creating a physical and psychological boundary." Because of this physical boundary, development in YBC is likely to have fewer effects on land uses south of the skyway than on areas immediately adjacent to YBC on its east and west. The areas east and west of YBC, therefore, receive the most detailed attention in this section. Possible effects of YBC on residential growth south of the freeway are discussed generally in the Impacts section.

/3/ Based on an informal land use survey conducted on March 1, 1982.

/4/ Based on a project list supplied by G. Puddefoot, Office of Environmental Review, February 23, 1982.

/5/ Based on an informal land use survey conducted by Environmental Science Associates, Inc. on February 22 and 23, 1982.

/6/ Report of the Citizen's Housing Task Force, July 29, 1981, p. 40.

/7/ San Francisco Planning and Urban Research (SPUR), June, 1981, South of Market: A Plan for San Francisco's Last Frontier.

B. HOUSING AND BUSINESS RELOCATION

The 1978 YBC FEIR, pp. 84 - 91, discusses the completed housing and business displacement and relocation as it was in 1977. People displaced by YBC were relocated under provisions of the Uniform Relocation Act of 1970. The Redevelopment Agency has paid relocation allowances for moving expenses and replacement housing costs for 2,070 individuals and 227 households, in accordance with the Department of Housing and Urban Development regulations. Former YBC residents were given preference in the allocation of available public housing units. However, records relative to the number of persons accepting or remaining in public housing placements are not easily obtainable./1/

As of April 1982, only one residential hotel was yet to be vacated. Three tenants and a manager reside at the Jessie Hotel on Jessie St. near Third St. The Planter's Hotel, formerly a residential hotel, is undergoing conversion to offices./1/

As of April 1982, the Redevelopment Agency owned buildings or properties containing 58 business tenants; there were two vacant buildings. Table 6 shows the remaining businesses, by type, in Redevelopment Agency properties, these businesses would eventually be relocated. Of these 58 existing businesses, 39 are re-rentals, having rented the property from the Redevelopment Agency. The 39 re-rentals are not eligible for relocation assistance.

FOOTNOTE

/1/ John Friedman, Assistant Director, Community Services, San Francisco Redevelopment Agency, telephone communication and statistical information, December 23, 1981, telephone communication, April 15, 1982.

TABLE 6: REMAINING YBC BUSINESSES IN REDEVELOPMENT AGENCY BUILDINGS TO BE RELOCATED, DECEMBER 1981

<u>Type</u>	<u>Parking</u>	<u>Light Industry</u>	<u>Retail/ Food/Bar</u>	<u>Business Services</u>	<u>Other</u>	<u>Total*</u>
Number of Businesses	17	7	10	7	16	58

*Thirty-nine of the 58 businesses are re-rentals, having rented from the Redevelopment Agency, and are not eligible for relocation assistance.

SOURCE: San Francisco Redevelopment Agency

C. SOCIAL CHARACTERISTICS

The social characteristics of the population living in YBC prior to Redevelopment Agency acquisition, relocation of residents and businesses, and demolition of structures were studied in a 1963 survey and are described in detail in the YBC FEIR (p. 84). The pre-demolition survey found that the majority of the households were single occupant (93%), Caucasian (87%), male (93%), and over the age of 45 (68%). Residents of single occupant households were generally unemployed or employed with low incomes and living in residential hotels. The few families living in YBC at the time generally had employed heads of households and lived in apartments.

In 1977, after most of the demolition had been completed, approximately 800 people remained in the YBC area./1/ Approximately 95% of all area residents lived in three large housing projects for the elderly. Thus, some 95% of all area residents were over 62 years old. 48% of the YBC area residents were Caucasian, 20% were Asian, and 18% were Black. Because admission to these housing projects required income limitations, it is likely that the vast majority of the remaining residents had low incomes.

In 1979, after certification of the YBC FEIR, Woolf House, a new 112-unit subsidized housing development for the elderly was constructed. An additional 70 units are presently under construction for the Fourth and Howard St. site. To date, 259 Tenants and Owners Development Corporation (TODCO) units for the elderly have been constructed at YBC and about 365 more are planned.

Most of the housing in the South of Market area is concentrated west of YBC, beginning near Sixth St. and extending to Ninth St., and from Mission to Harrison Sts. Residential buildings are interspersed with commercial and industrial uses, and consist primarily of two- to five-story buildings on small lots./2/

Appendix A, Table A-2, p. 239 of this Supplement lists and describes all available social services for the South of Market area as of spring, 1981. The whole South of Market area is deficient in commercial services, restaurants, and grocery stores. Community groups have cited needs for: parks and open space, improved medical service, additional counselling services, community outreach programs, and child care facilities (YBC FEIR, p. 96). Since the certification of the YBC FEIR, a subsidized cooperative food market has been opened in Woolfe House at Fourth and Howard Sts. For further discussion of commercial services, refer to Section V.C., pp. 84 - 96 of the YBC FEIR.

Social Characteristics In The Vicinity of YBC

Community Characteristics and Demography

"South of Market" is an area providing housing for over 10,000 people. It is still one of the lowest cost rental areas in the City, but since demand is greater than supply, competition for this dwindling lower-cost housing resource assures that even this lower-cost housing will eventually be too expensive for many of its current residents./4/ It is generally a low-income area with a complex set of social problems and diverse social groups.

Like the Tenderloin district to the north, it provides affordable housing and services for people with nowhere else to go. The "Skid Row" section centered along Sixth St. between Market and Folsom Sts. is populated by transients, unemployed persons and those suffering from alcoholism. The housing stock west of YBC is among the only low-income unsubsidized housing left in the City (the other principal areas of low-income unsubsidized housing are the Tenderloin and the South Park area).

Although current census data are incomplete or unavailable for many socioeconomic characteristics, some aggregate tract-level demographic data are available for the three 1980 census tracts which encompass Yerba Buena Center and areas immediately east, west and south of it. The three tracts are numbered 176.01, 176.02 and 178 (see Figure A-1, Appendix A, p. 236); combined, they cover an area bounded by Market St., The Embarcadero, Howard, Third, Harrison and Eleventh Sts. Aggregate data for these three census tracts do not provide specific information on individual blocks within the area; such detailed data are not likely to be available until late 1982.

Since special studies have not been completed for the study area and 1980 Census data for the most part are not yet available, little can be stated quantitatively about the current social composition of the area. Available 1980 Census data are for tract level units and the only available data are population counts and racial compositions. These data indicate that total resident population in Census Tracts 176.01, 176.02 and 178 has declined from about 8,400 (1970) to about 8,300 (1980) in the three tracts combined. The white population declined from about 5,200 in 1970 to about 3,900 in 1980. Black residents decreased from about 1,000 to 900 in the same period. The largest increase was for Asians, including Filipinos. Asians increased in number from about 1,900 (1970) individuals to about 3,000 in 1980 (see Table 7). The 1980 U.S. Census data show Filipinos to be the most numerous non-white group. 1980 U.S. Census data concerning age, sex, marital status, income and mobility are not available. 1970 Census data for these categories are not applicable to the current population, but are indicative of the area's recent history.

1970 U.S. Census data indicated that the study area population consisted predominantly of unmarried males with a high proportion of aged residents. The population was moderately stable in 1970 with about 30% of the residents residing in the same dwelling in 1970 that they had in 1965. The study area generally contained low-income populations. About one third of the population was below poverty level in 1970.

The elderly are probably the largest South of Market community. In 1970, before 1,400 new units were built within YBC and just west of its western edge, there were over 1,700 people over the age of 65 in all of South of Market./4/ The new apartment complexes at the western edge of YBC (Woolf House Apartments on WB-3, TODCO / Los Caballeros Dimasalang Apartments on SB-2, Clementina Towers at 320 Clementina St., Silvercrest Residence at 133 Shipley St. and Alexis Apartments at 390 Clementina St.) currently contain the primary concentration of elderly in South of Market, although elderly are also scattered throughout the area in over 3,000 residential hotel units/4/. In 1970 the U.S. Census documented over 1,700 Filipinos in South of Market, but even this number may have been far below the actual number./4/ This community is located primarily in small wood-frame buildings of two to 10 units along the mid-block side streets west of Fifth St., north of Harrison St. and south of Mission St./4/,/5/

The major socioeconomic groups in this three-tract study area besides the independent elderly and the Filipinos are the gay community, artists and transients, all difficult to quantify because they are not separately counted by the census.

The gay community is centered around Folsom St. west of Fifth St. Of this community the SPUR Study/4/ states that it is difficult to quantify, but that "the evidence of growth in this community is in the increasing number of gay-oriented businesses and in the rehabilitation and clearly young inhabitants of housing near Folsom." The artistic community west of YBC is also difficult to quantify. This group is generally evidenced by colorfully renovated housing above or adjacent to working craft studios. In the area immediately west of YBC (Fifth to Seventh Sts.) a few of these buildings occur among the light industrial and downtown support uses along Clara, Shipley,

TABLE 7: ETHNIC GROUP TOTAL POPULATION DISTRIBUTED BY CENSUS TRACT, SAN FRANCISCO, 1970 and 1980.

Ethnic Group	S.F. City and County		South of Market Census Tract			
	1970	(%)	176*		178	
			1970	(%)	1970	(%)
Total Persons	715,674	(100)	678,974	(100)	4,838	(100)
White	511,186	(71)	395,082	(58)	3,478	(72)
Black	96,078	(13)	86,414	(13)	248	(5)
Asian	97,389	(14)	147,426	(22)	936	(19)
American Indian	2,900	(0.4)	3,548	(1)	54	(1)
Other	8,121	(1)	46,504	(7)	116	(2)
					4,656	(100)
					2,359	(50)
					512	(11)
					1,489	(32)
					65	(1)
					231	(5)
					3,590	(100)
					1,768	(49)
					755	(21)
					961	(27)
					42	(1)
					65	(2)
					3,656	(100)
					1,582	(43)
					388	(11)
					1,474	(40)
					33	(1)
					179	(5)

* Tract 176 was separated into 176.01 and 176.02 in 1980; the two 1980 tracts were recombined for comparison with 1970 data in this analysis.

SOURCE: Environmental Science Associates, Inc., using U.S. Census, 1970 and 1980, and San Francisco Department of City Planning, March, 1975 population by Ethnic Group, San Francisco, 1970.

Clementina and Tehama Sts./5/ Of this group the SPUR study/4/ says, "The kind of space available (in South of Market) is ideal for artisans, craftpeople, artists, musicians, wood and metal workers and others who prefer places where studios and houses can be inexpensively and unobtrusively combined." The transients are a largely male community comprised of alcohoholics, and other unemployed persons who live in the residential hotels that surround the Sixth St. "Skid Row" area./4/ According to the SPUR study, this locally concentrated community is predominantly harmless, but nevertheless has created "a sense of insecurity and a degraded image for all of the surrounding environment."/4/

Housing Availability/6/

The amount of habitable housing in the South-of-Market area outside of YBC has been experiencing a general decline, most likely due to poor maintenance and little new construction. There have been no conversions of apartment buildings to condominiums in the western subarea./7/ Data from the 1970 U.S. Census indicate that only 1.8% of the housing units in the larger three-tract area were owner-occupied; 83.3% were renter-occupied./3/ It is not known how much these percentages may have changed since 1970.

Concentrations of residential hotels are located in the South-of-Market district. Some of these stand vacant./6/ The number of permanent rooms in residential hotels has declined in the South-of-Market area from about 4,700 in 1975 to about 3,700 in 1979, a decrease of about 1,000 rooms for a 21% change.

The fundamental pressures working against the construction of residential hotels are economic. In many cases the income stream from the rents is not sufficient to support the necessary repairs to keep the structures up to Building Code requirements (also see Land Use in the Vicinity of YBC, p.51). However, residential hotels offer the most efficient means to house low-income households, particularly single adults, without public subsidies. The units in residential hotels are currently protected by the City's Residential Hotel Demolition and Conversion Ordinance (Ordinance 330-81).

The affordable housing in South of Market attracts people who cannot afford to live elsewhere in the City. 1970 Census statistics and interviews with community members indicate that many people live in South of Market more out of economic necessity than by choice./8/ In general, incomes are lower and unemployment higher in South of Market than in the City as a whole.

FOOTNOTES

/1/ All demographic and social service data for this section are derived from studies done in the summer of 1977 for the YBC FEIR; descriptive material has been added for new information since 1977.

/2/ Information in this paragraph is from San Francisco Planning and Urban Research Association (SPUR), June 1981, South of Market: A Plan for San

/3/ San Francisco Department of City Planning, 1975, South of Market Statistical Profile.

/4/ San Francisco Planning and Urban Research (SPUR), June, 1981, South of Market: A Plan for San Francisco's Last Frontier.

/5/ Based on an informal land use survey conducted by the consultant on February 22 and 23, 1982.

/6/ Information in this section is from Report of the Citizens' Housing Task Force, July, 1981, pp. 156-163, unless otherwise noted.

/7/ Ibid., Figure 6, p. 147.

/8/ San Francisco Department of City Planning, 1976, South of Market Background and Issue Survey.

D. ECONOMICS

1. GENERAL ECONOMIC AND FISCAL SETTING

San Francisco's evolution into a regional financial, government, and service center is discussed in Section V.D. on p. 97 of the YBC FEIR. Office space has continued to grow; nearly twelve million sq. ft. of floor area have been added in San Francisco since the 1975 study conducted by Arthur D. Little, Inc. and the Department of City Planning (see Table A-1, Appendix A, p. 237).

The annual reports of the San Francisco Convention and Visitors Bureau for the years 1977 through 1980 indicate that approximately 13.5 million out-of-town visitors (including convention delegates) remained overnight in hotels and motels during that four-year period. Approximately 31 million out-of-town visitors have stayed in San Francisco hotels and motels since 1969 for an average of nearly 2.8 million out-of-town visitors annually for this eleven-year period.

In 1980, about 3.3 million out-of-town visitors remained overnight in San Francisco hotels and motels, and spent an estimated \$1,140 million in the City, or approximately \$345 per visitor. In 1980, approximately 11% of all out-of-town visitors using San Francisco hotel and motel facilities were convention delegates. In 1980, a total of about 645,000 convention delegates spent an estimated \$330 million in San Francisco, or approximately \$510 per delegate visit. This represents a decrease of 5% in the number of convention delegates since 1976, but an increase of 53% in the total amount spent by convention delegates since 1976. Approximately 54% of the total 1980 convention delegates (348,000) stayed in San Francisco hotels or motels; the remaining 46% either lived in the area or stayed with family or friends.

During the three-year period between 1977 and 1980, out-of-town visitors to San Francisco, excluding convention delegates, increased an average of 7% (compounded) per year. Non-convention visitor expenditures in San Francisco increased an average of approximately 18% (compounded) per year during this same period.

2. EMPLOYMENT AND FINANCING

Information on employment in the South-of-Market area and in YBC is contained in Section V.D., YBC FEIR, pp. 99 - 100, and YBC FEIR Appendices, p. 29.

Information on the financing of Yerba Buena Center development is contained in Section V.D., YBC FEIR, pp. 100 - 119.

Information on the City hotel tax is contained in Section A-V.D., First YBC EIR Supplement, pp. 26 - 27.

E. COMMUNITY SERVICES

1. WATER

The YBC area is served by gravity flow from the 140-million-gallon capacity University Mound Reservoir. System details are illustrated in Appendix B, Figure B-1, p. 243, and discussed in the YBC FEIR, p. 120. All mains are under the streets. The temporary 20-inch-diameter main in Howard St. between Third and Fourth Sts. has been replaced with a permanent 30-inch-diameter main./1/

2. SEWERS

The Bureau of Sanitary Engineering of the San Francisco Public Works Department provides combined storm drain and sanitary-sewer service to the project area. Major system details (excluding the smaller diameter sewers)/2/ appear in Figure B-2, Appendix B, p. 244. Brick mains (three ft. by five ft.), the North Point Main (an eight-ft. concrete main), and other concrete mains are located in the YBC area.

The North Point Water Pollution Control Plant, which receives stormwater and sewage from the area, receives an average dry-weather flow of 50 million gallons per day (MGD). The Plant has a maximum hydraulic capacity of 160 MGD./2/ City treatment plants are not designed to handle storm flow from rainfall greater than an average of 0.02 inches per hour; the excess flows bypass the plants and discharge directly into San Francisco Bay and the Pacific Ocean. Plans are currently being implemented to reduce these overflows and bring the City sewer system into compliance with Regional Water Quality Control Board requirements. Bayside dry-weather facilities (secondary treatment) are scheduled to begin operation in December, 1982. Dry-weather

flows from the area would be treated at the Southeast Water Pollution Control Plant, which will treat average dry-weather flows of 84 MGD. Peak capacity at the plant will be 160 MGD after expansion. The North Point Plant will be retained to treat wet-weather flows./2/

3. ELECTRICITY, GAS AND STEAM

The Pacific Gas and Electric Company (PG & E) supplies electricity, natural gas, and some steam power in the City of San Francisco. PG&E has existing underground electric and gas distribution facilities in the streets throughout the YBC area, except there are no gas facilities in Howard St. between Third and Fourth Sts. Some overhead electric facilities remain in the southern portion of the project, which will be placed underground at the expense of the Redevelopment Agency./3/ PG&E maintains low-pressure steam lines extending south on Third St. to Minna St. and Fourth St. to Stevenson St. The electricity, gas, and steam systems are described in the YBC FEIR on p. 122.

4. SOLID WASTE

The Golden Gate Disposal Company, a private firm, collects solid waste in the YBC area. Solid waste is transported to the Mountain View landfill site at Mountain View Shoreline Regional Park, which has a life expectancy of approximately 2-1/2 years./4/ Solid waste will have to be transported to a new landfill site at that time; the site has not yet been determined. San Francisco also plans to construct a garbage burning facility in Brisbane in 1986. Negotiations with vendors are currently underway and Brisbane has scheduled an election for late 1982 on whether to approve the project. Further details about disposal operations are described on pp. 122 - 123 of the YBC FEIR.

5. COMMUNICATIONS

Telephone service is provided in the YBC area by Pacific Telephone, and courier services are offered by several firms, as described on pp. 123 - 124 of the YBC FEIR.

6. POLICE

Officers of the San Francisco Police Department patrol YBC from the Southern Station, located in the Hall of Justice at 850 Bryant St. The opening of the George R. Moscone Convention Center prompted the assignment of an additional radio car to the YBC area in early December 1981./5/ The city-wide average response time for a priority call is two minutes./5/

For the period January through September, 1981, a total of 4,238 police reports were filed for all types of crimes for the five statistical reporting areas which include YBC (see Figure B-3, Appendix B, p. 245). Statistical Reporting Area 606, which includes the portion of YBC south of Fourth St. and west of Howard St., had the most total crimes in the city during this time period. The second-highest number of rapes, third highest number of homicides, and the highest number of robberies, assaults, burglaries, thefts, purse snatchings, and all other types of crime occurred in the 606 area. There are some 300 reporting areas in San Francisco. In the YBC area the crime frequency generally decreases as the distance from Market St. increases./5/

7. FIRE

Station Numbers 1, 8, and 35 of the San Francisco Fire Department serve YBC. Station No. 1 at 416 Jessie St. is one block outside of YBC; Station No. 8 is located at 36 Bluxome St., and Station No. 35 is at Pier 22-1/2. On a first alarm, three engine companies, two truck companies, one rescue squad and an Assistant Chief and Battalion Chief would respond, for a total of approximately 32 firefighters./6/

The San Francisco Fire Department is currently awaiting results of a survey undertaken by Public Technologies Incorporated assessing response times of the Department throughout the City. The results of this survey will be used to determine possible relocations of fire stations. Station Number 35, formerly

at 3rd St. and Howard St. has been relocated to Pier 22 1/2 since the 1978 YBC FEIR was completed. In addition, Station Number 27, formerly on Seventh St. between Folsom and Harrison, has been eliminated. This station would have served the proposed project./7/

The existing fire flows are approximately 6,000 - 7,000 gallons per minute (GPM) from low-pressure hydrants, and 10,000 - 15,000 GPM from high-pressure sources (see Appendix B, Figure B-4, p. 246). The water supply is adequate for current fire-fighting needs./6/

8. SCHOOLS

Few school-age children are known to be living in the YBC area. Primary students (grades kindergarten - sixth) attend Bessie Carmichael School at Harrison and Russ Sts., while older students attend Potrero Hill Middle School and Mission High School. There are alternative schools located throughout the City that students may elect to attend./8/ The Filipino Education Center and parochial schools are described on p. 125 of the YBC FEIR.

The Downtown Center of the San Francisco Community College District opened in February, 1979. The Center has a daily capacity of 10,000 students (who attend from 8:00 a.m. to 10:00 p.m.)./9/ A private high school (Bridgemont High School) is proposed for SB-4; the high school would have a capacity of about 300 students.

9. PARKS AND RECREATION

There are no public parks or mini-parks in YBC and because YBC is under the jurisdiction of the Redevelopment Agency, none are currently planned by the San Francisco Recreation and Park Department./10/ The existing parks nearby are described on p. 126 of the YBC FEIR.

The Recreation and Park Department is in the process of assembling a new park site at Sixth St. and Folsom St., about two blocks west of YBC. The park, which will total about 44,300 sq. ft., will be designed by a consultant with input from the community. Also, play apparatus for small children is planned for installation at Bessie Carmichael School./10/

10. MEDICAL

The South-of Market Health Center at 551 Mission St. is the principal health provider of outpatient care for the YBC area. Mental Health Center No. 4 also serves the area at 450 Sixth St. In addition, the San Francisco Venereal Disease Center is at 250 Fourth St. Emergency Services and specialized treatment are available from San Francisco General Hospital, which is three miles from YBC.

The YBC FEIR describes the existing medical services in the YBC area on pp. 126 - 127.

FOOTNOTES

/1/ J.E. Kenck, Manager, Distribution Division, San Francisco Water Department, letter dated December 28, 1981.

/2/ Mervin Francies, Engineering Associate II, San Francisco Clean Water Program, letter dated December 9, 1981.

/3/ Gerald Tyson, Commercial and Industrial Supervisor, Pacific Gas and Electric Company, letter dated December 11, 1981.

/4/ David Gavrich, Assistant Manager of Solid Waste Management, Chief Administrator's Office, telephone communication, Mach 24, 1982.

/5/ Sergeant Paul Libert, San Francisco Police Department, telephone communications, December 8, 1981, February 25, 1982, and statistical information supplied December, 1981.

/6/ Joseph A. Sullivan, Chief, Support Services, San Francisco Fire Department, letter dated December 14, 1981.

/7/ Chief Ed Murphy, Chief of Support Services, San Francisco Fire Department, telephone conversation, March 3, 1982.

/8/ Graciela Spreitz, Program Manager, Area One, San Francisco Unified School District, telephone communication, December 29, 1981.

/9/ Caroline Biesiadecki, Director, Downtown Center, San Francisco Community College District, telephone communication, December 28, 1981.

/10/ Tim Lillyquist, Management Assistant, and Mary Burns, Assistant to the General Manager, San Francisco Recreation and Park Department, telephone communications, December 28, 1981.

F. TRANSPORTATION

1. STREET SYSTEM

In the YBC area, Market and Mission Sts. are designated transit arterial streets and transit preferential streets as defined in the Downtown Transportation and Mass Transit Plans of the Transportation Element of the San Francisco Comprehensive Plan. Third and Fourth Sts. are also designated transit preferential streets, and Howard, Folsom, and Harrison Sts. are designated pedestrian-transit-service streets./1/ Third, Fourth, Howard, Folsom, Harrison and Market Sts. are also defined as Major Thoroughfares in the Thoroughfares Plan; Mission St. is not./2/ For a more detailed description of the street system in the YBC area, refer to Section V.F. on pp. 130 - 136 of the YBC FEIR.

Traffic Characteristics

Analysis of the p.m. peak-hour movements of pedestrians, automobiles, transit vehicles, trucks and other vehicles has been made to update (as necessary) information contained in Section V.F. of the YBC FEIR, pp. 137 - 155.

Pedestrians. YBC has a mixed level of pedestrian activity. The portion of YBC north of Howard St. has more-intense pedestrian activity than the portion south of Howard St. The description of pedestrian activity patterns on p. 137 of the YBC FEIR is still applicable to the current conditions.

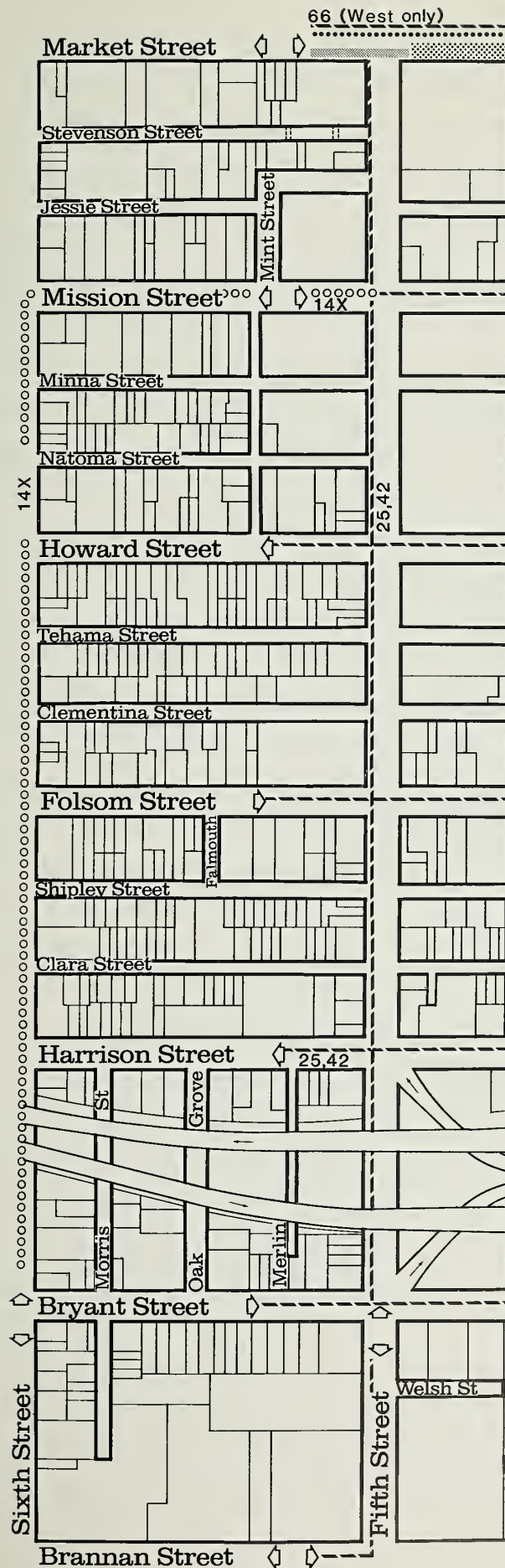
Increased development north of Mission St. has increased pedestrian loadings on sidewalks in YBC. Removal of temporary parking on CB-2 and CB-3 (caused by construction of Moscone Center) has removed some of the pedestrian demand that was in YBC at the time of the YBC FEIR. The current pedestrian patterns are similar to those observed in 1977-78 that showed intense peaking characteristics during commute hours.

During peak hours, the Mission St. sidewalks are still in the "moderately high" range as defined in Table 13, p. 137 of the YBC FEIR. Third and Fourth Sts. are in the "very high" range during peak hours.

New Montgomery St. has shifted into the "very high" range since preparation of the YBC FEIR.^{/3/} Although the hourly pedestrian volumes are large, sufficient sidewalk capacity is available to handle the demand at a reasonable level of operation. Third and Fourth Sts. north of Mission St. operate at the low end of the "impeded" range (some selection of walking speed with high indirect interaction between pedestrians) and Mission St. sidewalks in YBC operate in "impeded" condition (some selection of walking speed with minor conflicts between pedestrians). (See Table 15, p. 155, for pedestrian analysis and Table C-3, Appendix C, p. 255, for description of pedestrian flow levels.)



Transit. The YBC area is served directly by both surface and subsurface Muni routes. Entrances to the Market St. Muni Metro and BART subway are located adjacent to CB-1. There are surface motorcoach and trolley coach stops on Market St., Third St., Fourth St., and Mission St. Figure 13, p. 81 is a map of Muni routes in the YBC area.

Muni was estimated as carrying approximately 28,500 passengers outbound on 43 routes passing through downtown during the p.m. peak hour in 1980.^{/4/} Refer to p. 138 of the YBC FEIR for a description of additional transit services in the YBC area. Several changes have occurred in the regional and local transit systems since the preparation of the YBC FEIR (1978). Muni Metro service was instituted in 1978. Two phases of changes to Muni surface routes (1981, 1982) have modified some of the routes serving YBC. The direct Richmond-Daly City line was added to the BART system in 1980.



YERBA BUENA CENTER SECOND SUPPLEMENT

LEGEND

-  BART and Muni Metro Station
-  BART Route
-  Muni Metro Subway
-  Transit Route
-  Express Section of Route
-  Route Designation

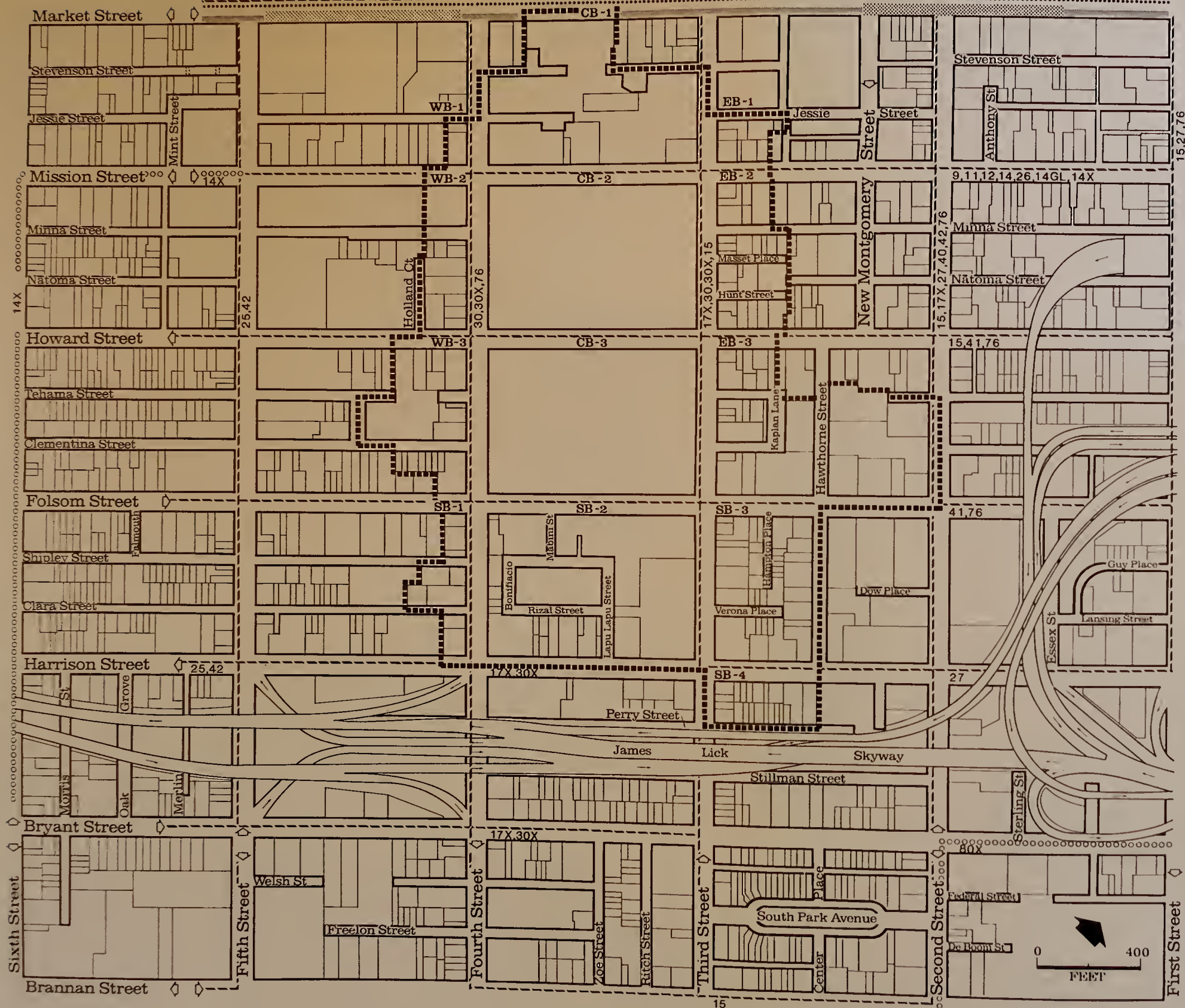
..... Redevelopment Area Boundary

FIGURE 13:

Muni Routes and BART in the
YBC Vicinity

SOURCE:

Environmental Science Associates, Inc., using San Francisco
Municipal Railway Interim Map, January, 1982



YERBA BUENA CENTER SECOND SUPPLEMENT

LEGEND

- BART and Muni Metro Station
- BART Route
- Muni Metro Subway
- Transit Route
- Express Section of Route
- J,K,5,6 Route Designation

..... Redevelopment Area Boundary

FIGURE 13:
Muni Routes and BART in the
YBC Vicinity

SOURCE:
Environmental Science Associates, Inc., using San Francisco
Municipal Railway Interim Map, January, 1982

Mixed Vehicles. Refer to p. 145 of the YBC FEIR for a description of vehicular traffic volumes and speeds on the street system in the YBC area. Analysis of seven intersections in the YBC area has been updated to determine existing a.m. and p.m. peak hour conditions in the vicinity./5/ See Appendix D, p. 261, for a description of the method of capacity analysis and definition of the levels of service. Analysis of the count data indicates that the intersection of Fourth and Howard Sts. is currently operating during the p.m. peak-hour at Level of Service D (volume/capacity (v/c) ratio 0.85), indicating poor traffic conditions. The intersection of Market and Stockton/Ellis/Fourth Sts. is operating at Level of Service A (v/c ratio 0.57) during the p.m. peak-hour period; this indicates excellent traffic operations. The intersections of Fourth with Harrison St. and Mission St. are operating during the p.m. peak hour at Level of Service B (v/c ratio of 0.65 at both intersection), indicating good traffic conditions. During the a.m. peak hour, the intersections of Third St. with Mission St. and with Market Sts. are operating at Levels of Service B and A, respectively (v/c ratio of 0.68 and 0.58). The intersection of Fourth and Bryant Sts. is operating at Level of Service A (v/c ratio of 0.55). These service levels are based on hourly traffic volumes, consistent with recent practice in other planning studies of downtown San Francisco traffic; peak 15-minute volumes were used in the YBC FEIR.

Parking

Parking studies conducted for the YBC FEIR (see pp. 155 - 156) are applicable to this Supplement, as the existing uses, except on blocks CB-2 and CB-3, are essentially unchanged from the earlier report. However, construction of the George R. Moscone Convention Center in CB-3 has removed many of the surface parking spaces in the YBC area. Analysis of recent parking survey data shows daily parking occupancies in the parking spaces not removed by construction to be in the range of 80% to 95%./6/

The portion of the YBC area north of Minna St. is within the Downtown Core automobile control area designated in the Downtown Transportation Plan of the Revisions to the Transportation Element of the Master Plan Regarding Parking./7/ This area is described in the Plan as "that intensely populated

area which functions as a financial, administrative, shopping and entertainment center where priority must be given to the efficient and pleasant movement of business clients, shoppers and visitors; where a continuing effort should be made to improve pedestrian, transit and service vehicle access and circulation; where priority for the use of limited street and parking space within this core should be available for these functions; and where a continuing effort should be made to reduce the impact of the private commuter vehicle".

The portion of YBC between Minna and Folsom Sts. is within the Parking Belt on the fringe of the Downtown Core automobile control area designated in the Downtown Transportation Plan of the Revisions to the Transportation Element. The Parking Belt areas are described in the Plan as "areas within the Downtown Commercial District which may be appropriate for short-term parking facilities". The area of YBC north of Folsom St. is in the Downtown Core automobile control area. Policy 4, p. 4 of the Plan discourages the addition of new parking facilities in this control area. The YBC Redevelopment Plan is not consistent with this policy in that it permits the construction of off-street parking structures in the Downtown Core automobile control area.

The Revisions to the Transportation Element of the Master Plan Regarding Parking states that "all additions to the commuter load as a result of job growth in the City should be made by public transit."/8/ In accordance with this statement, objectives and policies guiding and limiting the provisions of parking are outlined as revisions to the Downtown Transportation Plan, the Plan for Transportation, and the Citywide Parking Plan.

FOOTNOTES

/1/ San Francisco City Planning Commission, Resolution 6834, April 27, 1972, Comprehensive Plan, Transportation Element, pp. 12 and 25.

/2/ Ibid., Thoroughfares Plan, p. 23.

/3/ Counts by ESA on January 11, 1982 and by TJKM on weekdays in 1981 (see Footnote 5, below).

/4/ Source: San Francisco Department of City Planning, October 1980, Attachment III, Guidelines for Environmental Evaluation, Transportation Impacts.

/5/ P.M. peak-hour turning movement counts were made at the intersections of Fourth St. with Harrison St., Howard St., Mission St., and Market/Stockton/Ellis Sts. A.M. peak-hour counts were made at the intersection of Third St. with Mission St. and with Market St. and at the intersection of Fourth and Bryant Sts. Manual turning movement counts made by TJKM, traffic engineers, Tuesday and Thursday, October 27 and 29, 1981, between 7:00 and 9:00 a.m. and Wednesday and Thursday, November 4 and 5, 1981, between 4:00 and 6:00 p.m.

/6/ The parking inventory survey was conducted by TJKM on November 5,6,7,10, 13, and 17 1980 and January 20, 21, 22, 23 and 26, 1981, (all weekdays) between the hours 10:00 a.m. to noon and 1:00 to 3:00 p.m.

/7/ San Francisco City Planning Commission, Resolution 7647, January 20, 1977, Downtown Transportation Plan, Map A.

/8/ San Francisco City Planning Commission Resolution 7647, January 20, 1977, Employment Growth, p. 5.

G. CLIMATE AND AIR QUALITY

San Francisco's air quality is, in general, the highest for all developed portions of the Bay Area. The City's predominantly westerly and northwesterly winds tend to carry pollutants to other parts of the Bay Area, chiefly east and south. Much of the City is generally upwind from major sources, such as industrial areas, airports, freeways, and other urban areas. Light-variable (calm) wind situations, which occur about 25% of the time on an annual basis, lead to stagnation in the airshed, most commonly in the fall and winter months. At such times, the potential exists for the entire Bay Area to experience high concentrations of pollutants. The San Francisco climate is described in detail in the YBC FEIR, pp. 158 - 160.

Table E-1, Appendix E, p. 263 is an air-pollutant summary for San Francisco, based on measurements taken at the Bay Area Air Quality Management District (BAAQMD) monitoring stations at 939 Ellis St. and at 900-23rd St. The table indicates that the eight-hour carbon monoxide standard and the 24-hour total suspended particulate (dust) standard are occasionally (six times in 1980) exceeded.

Over 90% of street-level carbon monoxide (CO) is emitted from vehicular sources. CO concentrations, therefore, can vary greatly from place to place within the City. Table 8 shows estimates of 1981 CO levels at seven intersections in YBC. Eight-hour CO concentrations currently exceed standards at all of these intersections on days of worst-case (poor dispersion) conditions. These conditions are likely to occur fewer than ten times per year, and during the winter (November-January) radiation inversion season.

TABLE 8: ESTIMATED 1981 WORST-CASE ROADSIDE CARBON MONOXIDE CONCENTRATIONS IN YBC

<u>Location</u>	<u>CO Concentration* in ppm**</u>	
	<u>Evening Peak Hour</u>	<u>Highest 8-Hour Average</u>
Harrison & Fourth	20.3	10.2***
Folsom & Third	21.2	10.3***
Folsom & Fourth	20.1	10.3***
Howard & Third	20.8	10.0***
Howard & Fourth	21.0	10.3***
Mission & Third	24.5	10.9***
Mission & Fourth	17.9	9.3***

* Roadway-generated concentrations were added to ambient "background" concentrations. Background concentrations were assumed to be 12.8 ppm for one hour and 7.9 ppm for eight hours, based on the average of the second highest concentrations monitored over the past three years and adjusted for 1981.

** ppm: parts per million

*** Exceeds the applicable standards: 35 ppm for one hour and 9 ppm for eight hours

SOURCE: Environmental Science Associates, Inc., using Bay Area Air Pollution Control District (BAAPCD), 1975, Guidelines for Air Quality Impact Analysis of Projects, Information Bulletin, as updated by BAAQMD, 1980 for changes in vehicle emission factors, and based on traffic data from TJKM.

On a daily basis, the highest 8-hour-averaged CO concentrations occur between 4:00 p.m. and 2:00 a.m. An intense, but brief, maximum occurs from 7:00 to 9:00 a.m.; this is followed by reduced levels from 10:00 a.m. to 4:00 p.m.

The greatest build-up of CO occurs in winter when the formation of low-level radiation inversions correspond to the evening traffic peak hour (YBC FEIR, p. 162). Information on concentrations of other pollutants and on air quality management is on pp. 152 - 170 of the YBC FEIR.

The Bay Area Air Basin has been designated by the California Air Resources Board (CARB) as a non-attainment area for ozone and carbon monoxide, and San Francisco is non-attainment for particulates (i.e. the standards for these pollutants have been violated within the past 2-3 years). A regional Air Quality Plan/^{1/} was adopted in 1979 (after the completion of the 1978 YBC FEIR) which establishes control strategies (stationary and mobile source emission controls, and transportation improvements) to attain and maintain the standards by 1987. This regional Air Quality Plan is part of California's State Implementation Plan to attain the standards statewide by 1987. A 1982 update to this regional Air Quality Plan is being prepared, to be released later this year (1982). Although records indicating which projects were included in 1979 Bay Area Air Quality Plan air quality projections are not available, it is most likely that full build-out of YBC was taken into account in these projections.^{/2/}

FOOTNOTES

^{/1/} Association of Bay Area Governments (ABAG), Bay Area Air Quality Management District (BAAQMD), Metropolitan Transportation Commission (MTC), January 1979, 1979 Bay Area Air Quality Plan, San Francisco Bay Area Environmental Management Plan.

^{/2/} Irene Kan, assistant to the Air Quality and Energy Resources Program Manager, Association of Bay Area Governments (ABAG), telephone communication, April 5, 1982.

H. NOISE

As is typical of downtown San Francisco, the existing noise environment of YBC is dominated by traffic noise. Accelerating diesel buses produce noise peaks of 80 to 95 dBA/1/ frequently along Mission St.; the rest of the YBC area generally experiences a near-constant background "roar" of traffic noise. The elevated James Lick Freeway (I-80) controls noise levels in the southeastern corner of YBC.

The Department of Public Works has developed noise zones for the City, using the noise descriptor levels L10 and L90. These are statistical noise levels that represent environmental sound levels in dBA which are exceeded 10% and 90% of the time, respectively. L10 is useful in representing intrusive noise levels, and L90 in representing background noise levels. The Department of Public Works' data show that the YBC area, including CB-1, falls within the following zones (YBC FEIR, p. 172)./2/

Daytime

L10, 75 dBA
L90, 60 dBA

Nighttime

L10, 70 dBA
L90, 60 dBA

In the Transportation Noise Element of the Comprehensive Plan (Department of City Planning, 1974), the Department of City Planning mapped the YBC area within a 24-hour-averaged background noise level (Ldn)/3/ zone of 65 dBA.

Continuous 24-hour weekday noise measurements were taken at five sites between June 8 and August 8, 1977 for the YBC FEIR. These locations were chosen to monitor the noise environment in the vicinity of existing housing, and in areas where future housing development was planned. A summary of this measurement data is shown in Table 9. These measurements are described in detail on pp. 171, 173, 177, 179, 181 and 183 in the YBC FEIR, and in Appendix H, pp. 131 - 146 of the YBC FEIR Appendices. The 1977 measurements were spot-checked and verified in two sets of 15-minute measurements/4/ made between 4 p.m. and 5 p.m. on the afternoons of December 8 and 9, 1981. These were made at the same locations as those chosen in 1977, and are also shown in Table 9 for comparison.

The City has established land-use compatibility criteria for community noise (San Francisco Department of City Planning, Transportation Noise Element of the Comprehensive Plan of San Francisco, August 1974). These criteria are given in Figure H-1, p. 145 of the YBC FEIR Appendices.

TABLE 9: 1977 AND 1981 MEASURED NOISE LEVELS AT SELECTED LOCATIONS IN YBC

Site*	Description	Noise Level in dBA			
		1977 24-Hour Peak-Hour	Measurement Leq** Ldn	1981 15-minute measurement Peak-Hour Leq+	
U	South side of Mission between Third and New Montgomery at curbside	74	74	71	
V	On Clementina west of Fourth (near Clementina Towers) at curbside	65	66	65	
W	North side of Mission, between Fourth and St. Patrick's Church at curbside	71	71	70	
X	On Harrison, between Hawthorne and Third, opposite Golden Gate Recording Studios, at curbside	72	71	73	
Y	On south side of Howard, 75' west of Fourth (at TODCO Housing site), second floor outside	74	73	73++	

TABLE 9: 1977 AND 1981 MEASURED NOISE LEVELS AT SELECTED LOCATIONS IN YBC
(Continued)

* Letter designations correspond with those in Figure 18, p. 173, YBC FEIR.

** Leq : The equivalent steady-state sound level which in a stated period of time would contain the same acoustic energy as the actual time-varying sound level during the same time period.

+ Estimated, assuming 15-minute measurement period representative of entire hour.

++ 1981 measurement made at ground level outside.

SOURCE: Environmental Science Associates, Inc., and the YBC FEIR

FOOTNOTES

/1/ dBA; decibels (units of noise intensity) measured on the A-weighted scale, which is sensitive to the frequency response of the typical human ear.

/2/ The noise maps are available for inspection at the Department of Public Works, Bureau of Engineering, 45 Hyde St., Room 222, San Francisco.

/3/ Ldn: an averaged sound level measurement based on human reaction to cumulative noise exposure over a 24-hour period. To account for greater annoyance, 10 dBA are added to measured noise levels between 10:00 p.m. and 7:00 a.m.

/4/ Noise measurements were made with a Bruel and Kjaer sound level meter, Model No. 2206, calibrated on November 28, 1981.

I. RESOURCE USE

1. ENERGY

Electricity and natural gas service in the project area is provided by Pacific Gas and Electric Company (PG&E). Structures existing in YBC in 1977 have been estimated to demand approximately 31 million kilowatt hours (KWH) of electricity and 166 million cubic feet (cu. ft.) of natural gas per year (YBC FEIR, p. 87). Structures built between 1977 and 1982 have been estimated to demand approximately 13 million KWH of electricity and 16 million cu. ft. of natural gas. The current YBC demand for these two forms of energy is equivalent to a total of approximately 654 billion at source British Thermal Units (BTU)/1/ of energy per year.

New demands for electricity in the PG&E service area of Northern California will be met primarily with coal, nuclear, and hydroelectric sources. Co-generation and additional geothermal power development will also be used to supplement the existing supplies. Among the major new power plants expected by PG & E are the Diablo Canyon nuclear plant and the Helms Pump Storage hydroelectric plant./2/ Both projects are expected by PG&E to have their first units come on line in October, 1982 (Diablo Canyon must first receive an operating permit from the Nuclear Regulatory Commission). Unit Two of Diablo Canyon and Units Two and Three of the Helms Plant are anticipated to begin operating in early 1983. Municipally owned utilities anticipate some supplies from the Harry Allen Nevada coal-fired plant, beginning in the late 1980's. PG&E also anticipates increased purchases of electricity from other utilities. This power is expected to come from surplusses generated by hydroelectric and nuclear plants in Washington State. These surplusses are uncertain due to the recent construction postponements of two of the five Washington Public Power Supply System nuclear plants and increased local demand in the Pacific Northwest.

San Francisco presently generates sufficient electricity for its own uses through its Hetch Hetchy system; this power is sold to and distributed by PG&E. Two additional hydroelectric projects are under consideration by Hetch Hetchy for the Tuolumne and Clavey Rivers. The recent recommendation by a joint study team of the U.S. Forest Service and National Park Service for Wild and Scenic River status for the Tuolumne could prevent their construction.

PG&E has low-pressure steam supply lines extending south to Minna St. on Third St. and to Stevenson St. along Fourth St. Some steam would be available for use by YBC; however whether or not all needs could be met cannot be determined without exact estimates of consumption for the project./3/ Additional information may be found in Section V.I., pp. 186 - 188 of the YBC FEIR.

2. WATER

The San Francisco Water Department, under the control of the San Francisco Public Utilities Commission, provides water to the City of San Francisco from the Hetch Hetchy reservoir system. Discussion of the Hetch Hetchy water system delivery and storage capacities is in the YBC FEIR, pp. 188 - 189.

FOOTNOTES

/1/ The "British Thermal Unit" (BTU) is a standard for measuring heat. Technically, it is the quantity of heat required to raise the temperature of one pound of water 1 degree F (251.98 calories) at sea level. The term 'at-source' means that adjustments have been made in the calculation of the BTU energy equivalent to account for losses in energy which would occur during generation and transmission of the various energy forms as specified in: ERCDC, 1977 Energy Conservation Design Manual for New Nonresidential Buildings, Energy Conservation and Development Commission, Sacramento, CA: and Apostolos, J.A., W.R. Shoemaker, and E.C. Shirley, 1978, Energy and Transportation Systems, California Department of Transportation, Sacramento, CA, Proj. #20-7 Task 8.

/2/ A pump storage plant uses two reservoirs, one above and one below the generators. Water is dropped from the upper reservoir to the lower reservoir to generate power in times of peak demand. During times when demand is low (for example at night), surplus power from other sources is used to pump the water back to the upper reservoir. This plant was designed to operate in conjunction with the Diablo Canyon Nuclear Plant.

/3/ Richard Spadini, Power Engineer, Pacific Gas and Electric Company, telephone communication, March 25, 1982.

J. GEOLOGY AND SEISMOLOGY

Geology and Seismology are discussed on pp. 191-206 of the YBC FEIR. A summary of that information is provided below:

GEOLOGY

90% of the site is underlain by unconsolidated deposits of geologic material, except for parts of SB-3 and SB-4, which are underlain by bedrock of the Franciscan Formation (see Figure 14, p. 93). The unconsolidated deposits consist of dune sand, artificial fill, and undifferentiated deposits. (Undifferentiated deposits are intermixed layers of sand and mud). These deposits in turn are underlain (from uppermost to lowermost) by younger Bay Mud, the Colma formation, older Bay Mud, and bedrock. Over the remaining 10% of the site, bedrock outcrops on the surface in parts of SB-3 and SB-4. The depth to bedrock is irregular, and ranges from zero to 270 ft. below the surface, with increasing depth trending toward the north. For further information on topography and geologic materials, refer to Section V.J., pp. 191 - 198 of the YBC FEIR.

SEISMOLOGY

No active faults are known to exist within the City of San Francisco./1/ However, the site could be affected by several active faults in the San Francisco Bay Region, including the San Andreas Fault, the Hayward Fault, and the Calaveras Fault. Potential earthquake hazards on the site include groundshaking, liquefaction, and subsidence./2/ A major earthquake on the San Andreas or Hayward Faults could produce "Strong", "Very Strong", or "Violent" groundshaking on the site, depending on the depth and response characteristics of the underlying geologic materials (see Figure 15). In general, bedrock (unless sheared or fractured) is the most stable material during an earthquake, while artificial fill is the most unstable material.



YERBA BUENA CENTER SECOND SUPPLEMENT

LEGEND

- KJs** Bedrock, Franciscan Formation
- predominantly layered, medium-grade sandstone and shale, with lesser amounts of serpentine and volcanic greenstone
- Qaf** Artificial fill
- dune sand, including silt, clay, rock and organic waste, man-made debris
- Qd** Dune sand
- Qu** Undifferentiated sediments
- intermixed sand, silt, and clay, distinct layers hard to distinguish
- Inactive fault
- a fault which is probably incapable of producing an earthquake and having no record or geomorphic evidence of movement in about the last thousand years

----- Redevelopment Area Boundary

FIGURE 14:

Soils and Geology

SOURCE:

Environmental Science Associates, Inc., using information from the YBC FEIR



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- KJs** Bedrock, Franciscan Formation
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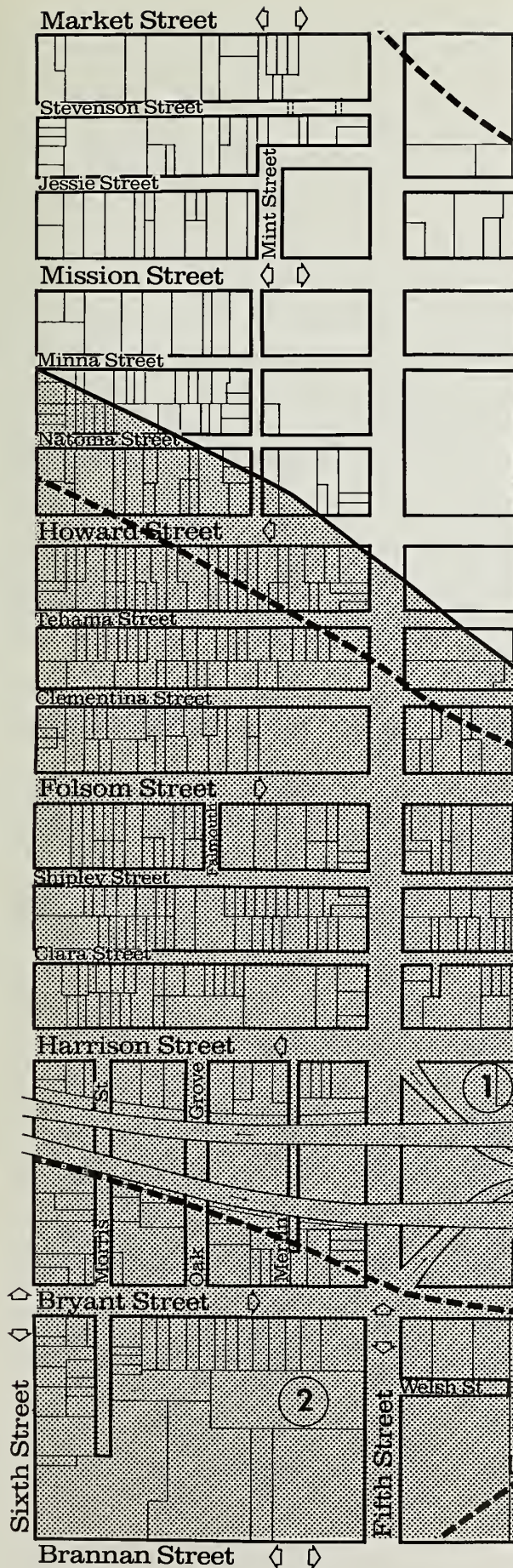
..... Redevelopment Area Boundary

FIGURE 14:

Soils and Geology


SOURCE:

Environmental Science Associates, Inc., using
information from the YBC FEIR



YERBA BUENA CENTER SECOND SUPPLEMENT

LEGEND

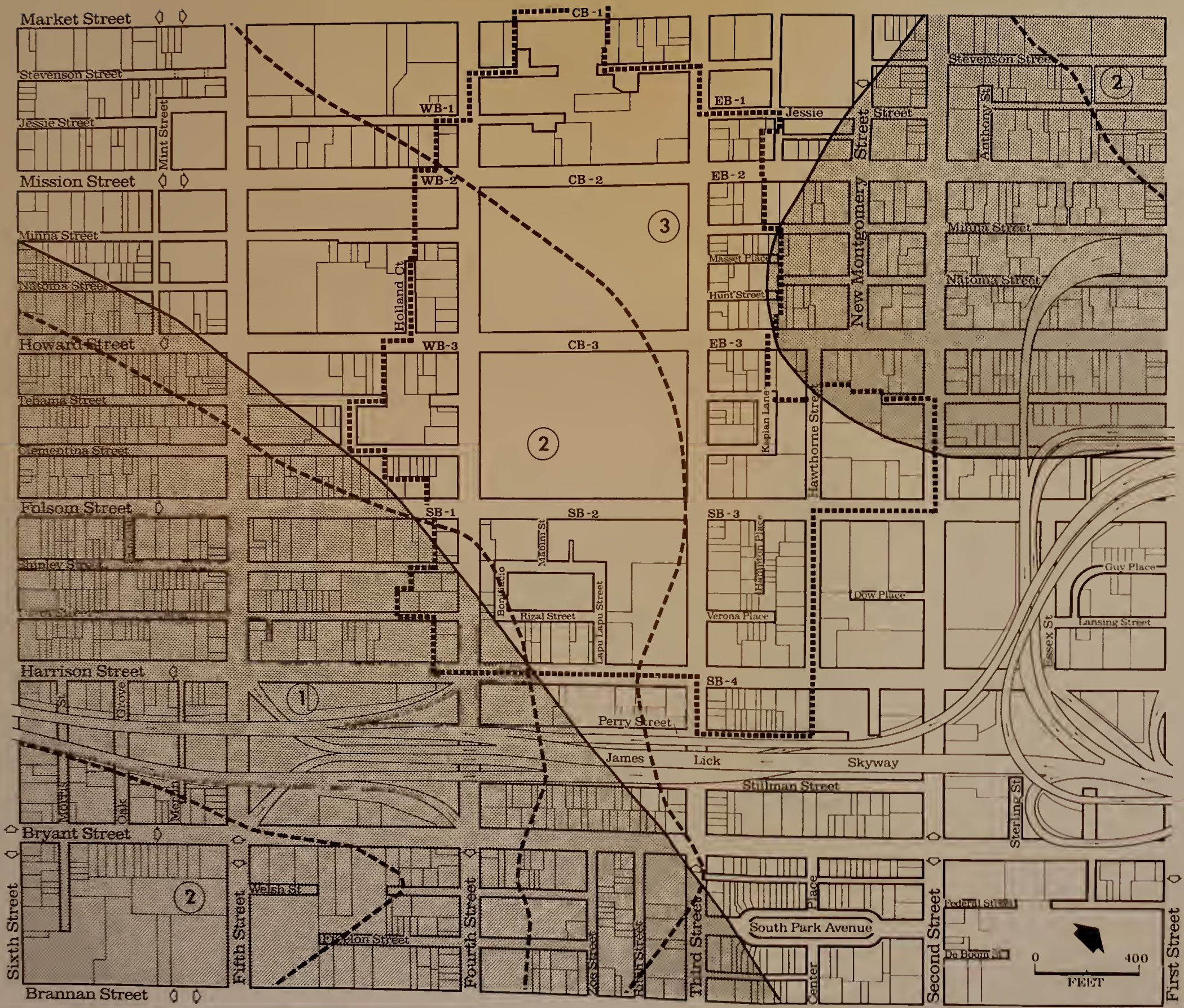
- ① Violent Ground Shaking
- ② Very Strong Ground Shaking
- ③ Strong Ground Shaking
- Boundaries of Ground Shaking Areas
-  Area of Liquefaction and Subsidence Potential
- Boundaries of Liquefaction/ Subsidence Potential Areas

----- Redevelopment Area Boundary

FIGURE 15:
Areas of Potential Seismic Hazard

SOURCE:

Environmental Science Associates, Inc., using information from the YBC FEIR



YERBA BUENA CENTER SECOND SUPPLEMENT

LEGEND

- ① Violent Ground Shaking
- ② Very Strong Ground Shaking
- ③ Strong Ground Shaking
- Boundaries of Ground Shaking Areas
- ▨ Area of Liquefaction and Subsidence Potential
- Boundaries of Liquefaction/ Subsidence Potential Areas

..... Redevelopment Area Boundary

FIGURE 15:
Areas of Potential Seismic Hazard

SOURCE:
Environmental Science Associates, Inc., using information from the YBC FEIR

Liquefaction and subsidence would probably be limited to areas underlain by artificial fill; the dune sand areas would be subject to liquefaction when a high water table exists (see Figure 15). For further information on seismology and seismic hazards, refer to pp. 192 - 206 of the YBC FEIR.

FOOTNOTES

/1/ An active fault is a fault along which displacement has occurred within about the last 11,000 years or which has exhibited historic earthquake activity.

/2/ Groundshaking is the transmission of earthquake vibrations through geologic materials and structures. Liquefaction is the transformation of saturated granular material, such as loose wet sand, into a fluid-like state similar to quicksand.

Subsidence is an uneven local settlement of the ground's surface. Although it can occur under static (normal) conditions, it is frequently activated by strong ground motion, such as that from an earthquake.

K. HYDROLOGY

There are no water courses, springs, or lakes in the YBC area, as it has been completely urbanized. The area is relatively flat and low lying; under natural conditions it would receive surface runoff from higher land to the north and east. No part of San Francisco is considered to be in a flood plain zone.

Surface runoff is generally greatest during the November-to-April rainy season. Runoff is collected by the City's combined sanitary sewer and storm drain system and discharged at the North Point Water Pollution Control Plant into San Francisco Bay. During large storms, the capacity of the sewer and storm drain system is exceeded, resulting in overflows of sewage within the project area into San Francisco Bay. This situation will be at least partially rectified by ongoing improvements to the City's wastewater management system.

The groundwater table in the area in 1964 ranged from eight to 13 ft. below the surface (approximately at sea level)./1/ In 1972, the water level below CB-1 and CB-2 was at elevation -16, San Francisco Datum, or 7.3 ft. below sea level./2/,/3/. For further detail concerning hydrology and storm water runoff, see the YBC FEIR, pp. 207 - 208.

FOOTNOTES

/1/ Youd, T.L., and S.N. Hoose, 1976, "Liquefaction during the 1906 San Francisco Earthquake", Journal of Geotechnical Engineering Division, ASCE, Vol. 102, No. GT5, Proceedings Paper 12143, May 1976, p. 425 - 439.

/2/ Dames and Moore, 1972, Foundation Investigations, Yerba Buena Center, Exhibit Hall and Sports Arena, prepared for the City and County of San Francisco.

/3/ San Francisco Datum is a reference point for surveying and vertical distance measurements. The elevation of the San Francisco Datum is 8.6 ft. above mean sea level.

L. ECOLOGY

Most of the YBC area is either paved or covered with debris and foundations from demolished buildings, so that vegetation is scarce. About 20% (11.4 acres) of the site is open ground; about 10% (1.2 acres) of this land supports primarily non-native weedy herbs, shrubs, and grasses. Some vegetation also occurs that is associated with landscaping, covering about 5% of the site. Wildlife is scarce, and is restricted mostly to insects, birds, and rodents. The area supports a Norway rat population which lives in the old sewer lines that were not removed when buildings were demolished, and feeds on food waste from disposals which enters the sewage system. A population of feral cats is living in several of the vacant and temporary parking lots in YBC and may be feeding on the rodents. No rare or endangered plant or animal species have been found on the site.

For further information on ecology, refer to the YBC FEIR, pp. 210 - 211.

M. ARCHAEOLOGIC AND HISTORIC ASPECTS

No sites containing archaeologically significant artifacts are known to exist in YBC. However, discovery of a shell mound just south of SB-2 and a human skeleton unearthed during BART excavation near Market and Seventh Sts. indicate that an indigenous Indian population may have inhabited the area (YBC FEIR, p. 212). Remains from later periods in San Francisco's history (i.e. post gold rush, pre-1906 earthquake) probably exist beneath existing structures in the YBC area, in the form of remains in privy vaults, basements, and backyard dumps that were covered by landfill and/or reconstruction after the earthquake. The extent of remains would depend on whether subsequent construction and excavation had disturbed them. A detailed survey of CB-3 before construction of the convention center found no sites of historical value on the block./1/ In addition, no sites of historical value have been established on any of the other blocks (YBC FEIR, p. 214). For a more complete description of the history of the YBC area and its archeological/historical significance, see the YBC FEIR, pp. 212 - 214.

Within YBC there are buildings that have been identified by various surveys as having historic or architectural interest or value. A list of these buildings, together with their rating by each survey and landmark status (if applicable), is presented in Table 10. The buildings listed in Table 10 are numbered to correspond with Figure 16, p. 101, a map of YBC showing their locations. A detailed description of the architectural rating systems referred to in Table 10 is in Appendix G, p. 269.

Several architectural surveys of San Francisco include the YBC area. In 1976, the San Francisco Department of City Planning prepared an Architectural Inventory for the entire City of San Francisco. Buildings were rated on a scale from a high of "5" to a low of "0". The Foundation for San Francisco's Architectural Heritage conducted an architectural survey and resources inventory (The Foundation for San Francisco's Architectural Heritage, Splendid Survivors, San Francisco's Downtown Architectural Heritage 1979), rating all downtown buildings constructed prior to 1945 from a high of "A" to a low of "D". The Heritage Survey only describes and rates buildings in the downtown

TABLE 10: Historic or Architecturally Significant Buildings in YBC, by Block**

<u>Name and Location</u>	<u>Heritage Survey Rating</u>	<u>Dept. City Planning Survey Rating</u>	<u>Notes</u>
<u>CB-1</u>			
1. Mercantile Bldg. (originally the Aronson Bldg.) 700-710 Mission St. Northwest corner, Mission and Third Sts.	A	4	ENR, AS, NRD
2. St. Patrick's Church 756 Mission St.	A	****	ENR, CL
3. St. Patrick's Church Rectory 760 Mission St.	C	3	
4. GSA (Veterans Admin.) Bldg.*** (formerly Apparel Center Bldg.) 49 Fourth St.	B	-	
5. Jessie Street Substation 222-226 Jessie St.	A	5	NR, CL
<u>EB-1</u>			
6. Hess Bldg. 163-165 Jessie St.	C	-	
7. Hotel Jessie 167-179 Jessie St.	C	-	ENR
8. Breen's 71-77 Third St.	B	-	AS
9. 81-85 Third St.	C	-	-
10. Grace Bldg. 87-97 Third St.	C	-	NRD, ENR
11. Gallatin Bldg. 674-676 Mission St.	C	1	-
12. 693 Mission St.	-	-	NRD, ENR

TABLE 10: Historic or Architecturally Significant Buildings in the YBC, by Block** (Continued)

<u>Name and Location</u>	<u>Heritage Survey Rating</u>	<u>Dept. City Planning Survey Rating</u>	<u>Notes</u>
<u>EB-2</u>			
13. Williams Building 101 Third St.	B	3	NRD, AS
<u>EB-3</u>			
14. Pacific Telephone Company* 666 Folsom St.	-	1	
<u>SB-1</u>			
15. Senior Activities Center (Salvation Army Building) 360 Fourth St.	-	3	ENR
<u>SB-2</u>			
16. Pacific Telephone Building* northwest corner, Harrison and Third Sts.	-	1	

Notes

ENR = a building eligible for, but not on, the National Register
 NR = a building on the National Register
 NRD = a building in a National Register historic district
 CL = a City Landmark building
 AS = a building on the City Planning Commission's listing of
 Architecturally and/or Historically Significant Buildings (does
 not include City Landmarks)

See Appendix G, p. 269, for a description of the these rating systems.

* indicates a building constructed after 1960.

** No architecturally or historically significant buildings are known to be on CB-2, CB-3, SB-2, SB-4, WB-1, WB-2, and WB-3.

*** The GSA Bldg. has been determined (on January 8, 1981) ineligible for the National Register by the Regional Historic Preservation Officer.

**** St. Patrick's Church was not rated by the Dept. of City Planning because it is already a City Landmark (Landmark #4, designated in 1968)

(Table 10 continued)

SOURCE: Environmental Science Associates, Inc., using Foundation for San Francisco's Architectural Heritage, Splendid Survivors, California Living Book, 1979; San Francisco Department of City Planning, Architectural Inventory 1976; E. Handschin, Environmental Analyst, U.S. Department of Housing and Urban Development, written communication to Louis Wall, Advisory Council on Historic Preservation, November 19, 1980.

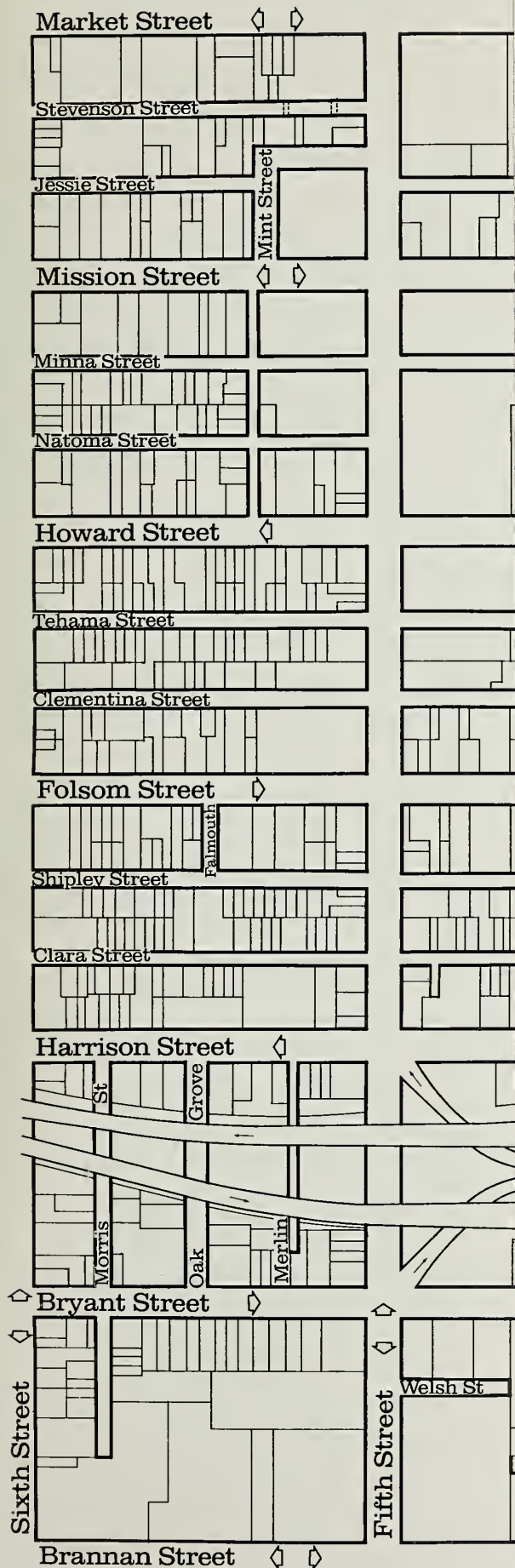
portion of YBC (i.e. WB-1, CB-1, and EB-1), but also lists buildings that may be significant in the rest of YBC and the South of Market area. In May 1980, the San Francisco City Planning Commission published a listing of Architecturally and/or Historically Significant Buildings in the Downtown to encourage preservation of structures with architectural or historic merit that are not designated landmarks.

Two buildings in YBC have been designated as City Landmarks: St. Patrick's Church at 756 Mission St. and the Jessie St. Substation at 222 - 226 Jessie St. Some of the buildings in YBC are or may be on the National Register of Historic Places, a list of cultural resources which are significant in architecture, history, and culture to the nation, state, or individual locality in which they occur. Buildings may either be significant by themselves or as part of a group of buildings which form a historic district. Three buildings on Mission St. have been designated as a historic district (see Table 10).

The GSA (Veteran's Administration) Bldg. at 49 Fourth St. was not included in the original YBC area. Although it was rated "B" in the Heritage Survey, the State Historic Preservation Officer and the General Services Administration have determined that the building is not eligible for listing on the National Register of Historic Places. A more complete discussion of the GSA Bldg. is presented in the First YBC EIR Supplement, p. 39. For descriptions of and further information on historic buildings, see the YBC FEIR, pp. 214 - 218e.

FOOTNOTE

/1/ Allen Pastron, Archaeological Consultant, letter dated July 1, 1978.



YERBA BUENA CENTER SECOND SUPPLEMENT

LEGEND

① Historic and/or Significant Building

Numbers keyed to buildings
in Table 10

----- Redevelopment Area Boundary

FIGURE 16:

Historic Buildings in YBC

SOURCE:

Environmental Science Associates, Inc.

VI. ENVIRONMENTAL IMPACTS

VI. ENVIRONMENTAL IMPACTS

Each of the impact categories in this section is generally organized into two subsections: "The Proposed Main Program and YBC FEIR Alternatives" and "Variants." In the first subsection the environmental impacts of the Main Program are compared with the impacts of the Alternatives A, B, C and D, analyzed in the 1978 YBC FEIR. Where the impacts of the Main Program would differ from those of the YBC FEIR alternatives, the differences are discussed. Where the impacts of the Main Program are not different from those of the YBC FEIR alternatives, the information in the YBC FEIR is summarized and incorporated by reference.

In the second subsection, "Variants," the effects of four variants to the Main Program are compared with the effects of the Main Program. The effects of each variant are discussed only where differences in impacts from the Main Program would occur.

A. LAND USE, ZONING, AND VISUAL ASPECTS

1. LAND USE

The Proposed Main Program and YBC FEIR Alternatives

Uses and square footages proposed under the YBC FEIR alternatives and the Main Program are shown in Table 2, p. 35. The Main Program is most similar to Alternative A, and also has components of Alternative B. While Alternative A would include the convention center, it also would include the uses designated by the Redevelopment Plan: 1.2 million sq. ft. of light industry, 7.75 million sq. ft. of offices, and 0.78 million sq. ft. of retail/commercial uses. Alternative A would also provide 700 hotel rooms; none of the other YBC FEIR alternatives would provide hotel rooms. Alternative B would include the convention center with smaller amounts of light industry and office uses but

with greater amounts of housing. Alternative C did not include a convention center and the center's accessory uses, but would have set aside CB-2 and CB-3 entirely for park use. Alternative C would be the least densely developed of all the alternatives with 0.5 million sq. ft. in light industry and the least amount of office space (2.6 million sq. ft.). It would have provided for 908,000 sq. ft. for public park use (the only alternative that would do so). Alternative D would be the "no-action" alternative; that is, land uses in accordance with the City Planning Code Use districts would occur. Emphasis in land use was placed on the following uses: office space, light industry, and downtown support. Alternative D would provide 6.1 million sq. ft., 4.7 million sq. ft., and 1.7 million sq. ft. of floor area, respectively, for these uses. Alternative D would have provided 888 subsidized dwelling units, and no market-rate dwelling units or the existing convention center.

The Main Program differs from Alternatives A and B primarily in the inclusion of 2,200 hotel rooms on CB-1; 700 are rooms proposed for CB-2 under Alternative A, the only YBC FEIR alternative that would include hotel uses. The hotel rooms are would serve visitors to the convention center and the cultural uses within YBC; these tourists would be expected to visit tourist attractions outside YBC as well. Hotel uses on CB-1 were discussed in the First YBC EIR Supplement, pp. 47 - 51. The Main Program would contain more cultural uses and more exhibit space than would any of the YBC FEIR alternatives. It would have fewer downtown support uses and light industrial uses (see Table 2, p. 35, for comparative floor area and number of units). Many of the uses proposed for CB-2 in the Main Program would be similar to the recreation/entertainment park uses proposed for that block in Alternative B.

The Main Program would have about 12 more subsidized dwelling units than would Alternative A or D, and the number of market-rate dwelling units would be about twice (1,970) the amount of market-rate housing proposed under Alternative C, which would have the greatest amount of market-rate housing (1,000 units) of any of the four YBC FEIR alternatives. The proposed increase in market-rate dwelling units would provide approximately a 2:1 ratio of market-rate to subsidized housing in all of YBC under the Main Program.

On CB-1, 10,000 sq. ft. of cultural space, as well as retail and office space, would occupy the restored Jessie St. Substation, accessible to pedestrian traffic on the pedestrian plaza that would connect CB-1 with the Moscone Center. The Jessie St. Substation would contain office and retail commercial space under the four YBC FEIR alternatives. On CB-2 there would be about 1,500 spaces of private accessory parking, likely to be in one or more parking levels underground, 120,000 sq. ft. of cultural and 90,000 sq. ft. of retail space, about 135,000 sq. ft. of amusement, recreation and entertainment uses, and a 100,000-sq.-ft. underground ballroom and exhibit space. These uses, and the 2,200 hotel rooms proposed for CB-1, would complement the convention center and contribute to making the Central Blocks an active visitor center. The retail and cultural uses on CB-2, in conjunction with the active open space, are similar in concept to the 400,000 and 303,000 sq. ft. of commercial entertainment use that would be provided under Alternatives A and B, respectively. In accordance with the Request for Qualifications (RFQ), April, 1980, p. 21, building coverage on CB-2 is limited to 40% in order to ensure a park-like environment. A group of outdoor gardens, a children's garden or a contemplative garden, for example, are being considered for this active open space. These could include outdoor performance areas. The RFQ (p. 21) limits building heights on CB-2 to 80 ft.

On CB-3 10,000 sq. ft. of cultural uses, 120,000 sq. ft. of amusement/recreation/entertainment uses and 30,000 sq. ft. of retail/commercial uses would be placed on the convention center roof. Similar to Alternatives A or B for CB-3, the convention center would remain the dominant use on the block under the Main Program. YBC FEIR Alternatives A, B, and C would make the surface of CB-3 a completely open, landscaped area. Alternative D did not include the existing convention center and would allow full build up of the surface of CB-3. Under a variant to Alternative B, recreation/entertainment uses would be provided on the roof-top of the convention center; this is described on p. 48 of the YBC FEIR. The Main Program uses would introduce above-ground structures on up to 60% of the convention center roof area. About 40% of the area would be park (a condition of the RFQ, April, 1980, p. 21). Also in accordance with the RFQ, building

heights would be limited to 60 ft. The height of some buildings on the block would probably be less because the roof design of the convention center can accommodate, at most, the weight of a three-story steel-framed structure, about 30 to 40 ft. high (RFQ, p. 17). Taller structures would have to be of a lighter-weight construction. The new cultural and recreational attractions on the block would complement the convention center and the proposed uses on CB-2 by attracting people to the block at times when no convention activities would be taking place.

Under the Main Program, EB-1 would contain office and retail uses similar to Alternative A. About 200,000 sq. ft. of cultural space, possibly a major museum, is proposed on EB-2 under the Main Program and its variants only. Combined with the 700,000 sq. ft. of office space proposed, the total cultural and office space on EB-2 would be about the same floor area as is proposed as office space only under Alternative B (910,500 sq. ft.) and as a combination of office (803,500 sq. ft.) and downtown support service space (123,000 sq. ft.) under Alternative D. It would be less than the 1,297,000 sq. ft. of office space proposed for the block under Alternative A. Under the Main Program, office space would continue to be the dominant use on the block. Under the Main Program, the block would contain office uses, private parking, retail/commercial space, and, as under Alternative C, 300 market-rate dwelling units. The cultural space would make EB-2 a visitor center, in conjunction with the convention center and rooftop uses on CB-3 and the cultural, retail and active open space proposed on CB-2 across Third St., attracting local and regional visitors and tourists from the convention center and hotels proposed within YBC and located elsewhere in the City. EB-3 would contain office, parking and housing (300 units) uses similar to Alternative C (200 units), but none of the downtown support services included in all four YBC FEIR alternatives.

On SB-2, the Main Program proposes 200 subsidized dwelling units, 800 public parking spaces, 320 market-rate dwelling units and 35,000 sq. ft. of retail/commercial space in addition to the office, light industrial, downtown support uses and 147 units of subsidized housing existing on the block. The proposed uses would be similar to the YBC FEIR alternatives in preserving the

mixed-use aspect of the block. The Main Program proposes less total building area (about 1.1 million total sq. ft. of uses) for SB-2 than YBC FEIR Alternatives A and D (about 1.5 million sq. ft. of uses). Because the proposed market-rate housing would increase the total housing on SB-2 (from 340 units in Alternatives A and D and 460 units in Alternatives B and C to about 667 units under the Main Program), some additional demand for supporting retail/commercial services and facilities would be created. This would be supplied by the 35,000 sq. ft. of retail/commercial proposed as a new use on the block, provided the space is occupied by neighborhood-serving establishments. Such space would allow the elderly and low-income groups to have nearby retail services available. The proposed market-rate housing would provide additional clientele for both existing and proposed retail/commercial uses. Market-rate housing units would be introduced on SB-2, and also on SB-3 (about 650 units) where previously only subsidized units had been planned; the result would be to diversify socioeconomic groups on the two blocks. The public parking spaces would provide support for the convention center on the adjacent block (CB-3), and the cultural facilities planned for YBC. The public parking would also partially compensate for existing temporary public parking, which would be lost when other blocks in YBC are developed. SB-4 would contain a private high school, replacing part of the light industrial space proposed in the YBC FEIR alternatives; the high school is discussed in the First YBC EIR Supplement, pp. 104-5.

Variants

Variant A, the Reduced-Housing/Increased-Office-and-Retail Variant for CB-1, would provide 900,000 sq. ft. of office space, 400,000 sq. ft. more than the Main Program, and reduce market-rate housing from 500 units proposed for the block in the Main Program to 200 units. It would provide 290,000 sq. ft. of retail/commercial space including a major department store, as compared with 200,000 sq. ft. of retail/commercial space under the Main Program. The reduction of housing units would result in less housing in an area within

walking distance of the Financial and Retail districts. This area may be considered a desirable place to live because of its proximity to the principal areas of employment and shopping in San Francisco. Possible conflicts between visitor and residential use (refer to p. 42 of the First YBC EIR Supplement) would be lessened because there would be fewer housing units on the block.

The added amount of office and retail space (400,000 more sq. ft. office and 90,000 more sq. ft. retail) would bring additional daytime employees and shoppers to the block. This would result in more pedestrian use of the sidewalks, greater use of public areas, increased demand for restaurant and food service outlets, and additional parking and public transportation requirements than would the Main Program. These additional demands would result in greater use of nearby public spaces with visitors using or visiting the open spaces proposed for CB-2 and the rooftop of the Moscone Convention Center on CB-3, especially during the morning and lunch hours. The proposed department store on CB-1 would mean less space would be available for small retailers on the block. It might serve to reinforce the Retail District on the south side of Market St. by providing a major department store one block east of the Emporium.

Variant B, the No-Housing Variant for CB-1, would result in no housing on the block (the Main Program would provide 500 units). Even though there would be no residents on the block, resident-serving services and activities may be needed nearby to serve residents on neighboring blocks (EB-2 and CB-2, for example). There would be no residential and visitor use conflicts as described on pp. 42 - 43 of the First YBC EIR Supplement.

Variant C, the Housing Variant for CB-2, calls for 300 housing units in addition to the Main Program uses for CB-2. The land use in this variant would be most similar to those proposed for the block under Alternative B (see Table 2, p. 35 and pp. 220 - 221 of the YBC FEIR). However, this variant differs from Alternative B in that it proposes no office space and only 60% of the retail commercial space proposed under Alternative B. It would also have 250 more market-rate housing units than would Alternative B, which proposed 50 dwelling units. The proposed 300 housing units on CB-2 would create

additional building density on the block over that for the Main Program. The 300 dwelling units, representing a roughly 11% increase to the total housing for the Main Program, would add to the demand for supporting retail/commercial services and facilities. Neighborhood-serving retail/commercial uses are proposed for SB-2, about two blocks away; some of the retail space proposed CB-1 and CB-2 could be neighborhood serving. Some land-use conflicts could occur between residents and visitors on CB-2. The occurrence of major events on CB-2, such as concerts or art exhibits, may result in large crowds, long lines, traffic congestion and competition for parking spaces. Since CB-2 would also serve as the primary pedestrian route between the convention center and hotels on CB-1 and area north of Market St., heavy crowds would also occur on CB-2 whenever a convention was held at the George R. Moscone Convention Center. These crowds could cause CB-2 residents to feel that they had little privacy or neighborhood community. Should housing on CB-2 be placed along CB-2's northern and eastern edges, it would relate to other market-rate housing proposed on CB-1 and EB-2. This could contribute to a sense of security and neighborhood in a market-rate housing community in YBC.

Should housing be built on CB-2 so as to appear to narrowly enclose "gardens" uses or other public spaces, the residential uses might appear to exert a territorial claim on this open space. Visitors might be reluctant to enter and use public areas that appear to be designated for private residential use.

In Variant D, the Increased-Housing/Reduced-Office Variant on EB-2, the number of dwelling units would be increased from 300 to 700 and office space would be decreased from 700,000 sq. ft. to 300,000 sq. ft. Assuming the floor space of the 400 additional units would be about equivalent to the reduction in office space (400,000 sq. ft.) the gross floor space would not differ from the Main Program. Other land use impacts due to the additional housing units would be similar to that described on p. 107, relating to land use impacts for CB-2, Variant C. Housing near a museum or other cultural facility might result in residents being affected by parking and traffic congestion and lines of people, should a major exhibition be staged there; these inconveniences would also occur should there be a major event at the assembly spaces proposed for CB-2. Increased housing on the block could contribute to a greater sense of neighborhood and community security on the block.

Land Use in the Vicinity of YBC

Full build-out of the Main Program would bring with it a population of office workers, visitors (to the existing George Moscone Convention Center, and to the proposed "gardens" on CB-2, the commercial entertainment and amusement uses, the cultural uses and the retail commercial uses) and permanent residents (in 1,970 market-rate dwelling units and 900 subsidized dwelling units). The project would also bring new structures, recreational and cultural facilities and public open spaces. The new residents, visitors and conventioners would have demands for retail-commercial services which could induce some merchants within the study subareas to offer tourist-serving retail goods and services, or goods and services aimed at the new residents. The construction of new buildings and facilities would be likely to improve potential land-buyers' perceptions of the area. For ease of discussion, these possible catalysts for land use changes in the study subareas adjacent to YBC can be grouped into two categories: 1) retail-commercial demand effects, caused by YBC residents and visitors who would be willing to pay for certain services within walking distance of YBC, and 2) land use attractor effects, caused by introducing land uses which may attract similar uses to adjacent areas.

Competition for residential-serving retail space is likely to be the primary retail-commercial demand effect. As new residents with different tastes and preferences move into both YBC and the vicinity, some of the pawn shops, small bars, liquor stores, used-merchandise stores, and other small retail establishments that service the current neighborhood residents in the western subarea would probably be displaced in favor of more traditional neighborhood-serving establishments, such as a laundromat or large grocery store. The extent of this displacement would depend on the number of new residents in YBC, their income levels and the proximity of the new residences to retail-commercial establishments both inside and outside of YBC. Because the Main Program would bring more market-rate housing to YBC than would any of the YBC FEIR alternatives, its potential to encourage retail-commercial

conversion in the western subarea would be greatest. This potential would be greater under Variant C, the Housing Variant for CB-2, and under Variant D, the Increased-Housing/Reduced-Office Variant for EB-2. It is likely that some of the retail-commercial space proposed under the Main Program and its variants would be resident-serving (the 35,000 sq. ft. of retail-commercial use proposed for SB-2, for example); the exact total amount dedicated to this particular use has not yet been determined. This space would be likely to absorb most of the demand of residents nearest to it. Residents of the market-rate housing on CB-1, CB-2 (under the Housing Variant for CB-2), SB-2, SB-3 and EB-2, and elderly residents of the subsidized housing on WB-3 and SB-2, however, would probably patronize retail-commercial establishments to the west, if such establishments offered better prices or services not found in YBC. Merchants within walking distance (about 2000 ft.) of YBC's western boundary might convert to uses able to compete for this business. This "walking distance" would extend to Sixth St.

It is likely that visitors and office workers would generally satisfy their retail-commercial needs inside YBC because restaurants, cafes and shops would be provided within YBC as part of the Main Program (as well as part of Alternative A or B). These office workers and visitors would also have little reason to cross through the area west of YBC on foot, as their major destinations outside of YBC, such as the Union Square area or mass transit on Market and Mission Sts., are most easily reached by using the north-south pedestrian plaza in YBC. Alternatives C and D would provide comparatively few of these retail-commercial services; park visitors under Alternative C and office workers under Alternative D may be encouraged to regularly patronize establishments up to two blocks away from YBC, particularly in the vicinity of Market and Mission Sts.

Some conventioners attending conventions at the Moscone Center on CB-3 would regularly walk between their hotels and the convention center. Most of the conventioners would be likely to stay in the hotel rooms on CB-1 (provided under the Main Program), in the Union Square hotel district or in the Hilton Hotel, proposed Ramada and Holiday Inn near Fifth St. North and Ellis St. (see Figure 3, p. 15). Although some conventioners may choose to walk up

Fourth St. to some of these hotels, the most direct path to the hotels near Fifth St. North from CB-3 would be to walk west on Howard St. then north on Fifth St. Neighborhood-serving uses along this route are a liquor store (198 Fifth St.), a produce market containing several small luncheon counters (Giannini's Food Fair at 75-79 Fifth St.), a barber shop (Ray's Barber Service at 31 Fifth St.), and a liquor/grocery store (40 Fifth St.). Although several cafes and small shops already exist along this route, the neighborhood-serving store owners may choose to compete for the conventioneer business if they perceive sufficient foot traffic. The effects of pedestrian traffic between the convention center and hotels will occur regardless of whether the Main Program, its variants, or another alternative is implemented, because the convention center has been constructed and is now in use. Alternative A, which would provide 700 hotel rooms in YBC, and Alternatives B, C and D, which would provide no hotel rooms in YBC, would have greater convention-pedestrian effects on retail uses west of YBC than would the Main Program, because the 2200 hotel rooms proposed on CB-1 under the Main Program would attract many pedestrians directly north from the Convention Center.

Development proposed for YBC under the Main Program or any of the YBC FEIR alternatives would act as a set of land use attractors. Uses at the edges of YBC might tend to encourage development of similar uses nearby. The greatest potential effect would be on the western subarea, which contains run-down structures and underutilized parcels, and which has experienced little growth or new development (see Sales Trends, above). The kinds of land uses attracted along YBC's western edge are likely to be the same for all the YBC FEIR alternatives and the Main Program. This would be because most of the uses along YBC's western edge such as the Downtown Community College, Yerba Buena West office building and Woolf House residences, are existing and to remain under all the YBC FEIR alternatives and the Main Program.

YBC's concentration of new housing in its southwestern corner, WB-3 and SB-2, (see Figure 8, p. 38), as well as the Silvercrest Residence adjacent to SB-1 and the Alexis Apartments adjacent to WB-3, could encourage construction of new or renovated housing along the western subarea's southern sidestreets: Clara, Shipley, Clementina and Tehama Sts. Much of the Main Program's housing

on WB-3 and SB-2 has been constructed; 535 units exist and 590 units remain to be built. Since little residential land value speculation, if any, has occurred in response to the existing units (see Sales Trends, p. 56), it is not clear whether or not the units remaining to be built would encourage this speculation (and resulting renovation and new construction). The housing in YBC nearest the western subarea would be subsidized housing for the elderly; this stable elderly community could contribute to making the area attractive to residential developers. This attractiveness is likely to be enhanced by the provision of market-rate units nearby on CB-1, CB-2 (under Variant C, the Housing Variant for CB-2, only) and the eastern portion of SB-2. In addition, potential homebuyers and renters could recognize the natural advantages of the area (proximity to the downtown workplace and comparatively low property values and rents) as well as the benefits of the adjoining YBC (added open space, recreational, and cultural amenities). Should these people enter the market, they would be willing to pay more for housing and retail-commercial services than current area residents are able to afford. Current residents, primarily Filipino families, who may be at a competitive disadvantage in such a market, might be displaced.

It is likely that these effects would eventually occur with or without development in YBC; continuing downtown office growth and its accompanying housing demand would probably be sufficient in the long run to induce real estate speculation in the area west of YBC. The YBC Main Program would be likely to act as a catalyst in this process of housing development, inducing these changes more quickly than would other market forces alone. Alternatives B and C, however, which propose more housing along YBC's western edge than does the Main Program, might accelerate the trend even more than would the Main Program towards housing renovation and development in the western subarea.

Demolition or conversion of residential hotels to other uses as a result of land value speculation is discouraged by the Residential Hotel Conversion Ordinance (Ordinance 330-81). Since changes in use of residential hotels are not allowed, land speculation is constrained. The City's Bureau of Building Inspection has not received any complaints of illegal conversions since the ordinance was enacted./2/ It is likely that the "Skid Row" image of the

residential hotel neighborhood has contributed to retarding speculation there. In the long run, there appear to be few incentives to make major rehabilitation, or even routine repairs, for these hotels. The SPUR study states that in order to alleviate this potential problem, and to avert long-run market pressures on these buildings, public action may be necessary to protect residential hotels as permanent low-income housing in the area west of YBC./1/ Rehabilitation of residential hotels is a cost-effective means of providing low- and moderate-income housing. In Portland, nonprofit organizations and private owners, with public assistance, have rehabilitated several hotels for \$500 to \$5,000 per unit, which compares favorably with the \$50,000 to \$100,000 per-unit cost of U.S. Department of Housing and Urban Development (HUD) Section 8 Substantial Rehabilitation / New Construction programs./3/

The impact of residential property speculation on low-income apartment units in the area west of YBC might be partially controlled by the City's Rent Stabilization Ordinance (Number 276-79). This ordinance was originally passed in 1979, but was strengthened by an amendment that became effective April 1, 1982. Previously, it was the tenant's responsibility to file a complaint when a landlord increased his rent by more than 7%, the ceiling set by the ordinance. This program tended to help people who were aware of their rights. The recent rent stabilization amendment changes the burden from tenants to landlords; landlords must first obtain permission from the Rent Stabilization Board before increasing rents more than 7% per year. This change is likely to benefit low-income renters west of YBC, although it is not yet known to what extent. Landlords would continue to be exempt from the 7% ceiling, however, if there is a change of occupancy, or if the unit affected is in an owner-occupied building containing fewer than four units.

Development of 970 market-rate housing units on SB-2 and SB-3 as part of the Main Program could encourage similar development south of the James Lick Skyway in the South Park area. Some buildings in the South Park area are already undergoing renovation./1/ This area is immediately adjacent to the Rincon Point - South Beach Redevelopment Area, which will contain about 2,200

residential units as well as neighborhood-serving commercial uses. The direct influence of YBC on South Park is likely to be diminished somewhat by the James Lick Skyway, which would act as a psychological barrier between the two areas. South Park would probably receive more pressure for renovation from the Rincon Point - South Park Redevelopment project than from YBC.

It is important to note that the construction of 1,950 units of market-rate housing (as well as provision of 900 units of proposed and existing subsidized housing) within YBC under the Main Program would increase the total supply of housing in San Francisco. Even though location of this housing within YBC could increase the potential for further housing development in the South of Market area, it would decrease the likelihood of such an occurrence elsewhere in the City by relieving some of the housing demand pressure. The Main Program would supply more housing than would any of the YBC FEIR alternatives.

It is likely that office growth would continue to be confined to areas east and south of YBC, although some new office development is planned for the South Van Ness area. Some conversions of manufacturing and light industrial space west of YBC may occur, because these parcels could yield greater economic returns if converted to more intensive land uses. More intensive land uses are reflected to a certain degree in prevailing market rents. "The annual rent levels for office space in the South of Market (averaging \$12 to \$15 per sq. ft. per year) are still considerably lower than downtown office rents, but they are twice the maximum which industrial users can afford to pay (\$5 to \$6 per square foot)."/4/ The attractiveness of this space as office space is limited, however, because of land use, height and bulk controls. Office development east of YBC would continue to occur with or without the Main Program or any of the YBC FEIR alternatives. The Main Program and YBC FEIR alternatives could contribute to rising land values in the area by increasing the attractiveness of the area to other developers. Alternatives A and D, both of which would have more office space (90% more and 11% more, respectively) than the Main Program, might have a greater influence on office space speculation east of YBC than would the Main Program. On the other hand, as increased supply tends to fulfill existing demand, there could be less pent up demand for additional office space.

The area south of the James Lick Freeway, west of Third St. and north of Townsend St. has many parcels containing manufacturing, light industrial and downtown support (such as print shops, repair shops and equipment supply stores) uses. This area is vulnerable to office conversions, a trend which has already begun./5/ The Department of City Planning, concerned about the possible loss of the the City's blue-collar employment base, introduced to the City Planning Commission on January 26, 1982 a proposal to establish industrial conservation zones in the area. This proposal was returned to Department of City Planning staff for revisions. Although not yet definite, it is likely that the revised proposal would establish zones where space would be reserved for industrial uses by excluding competing land uses./5/ The effects of YBC on this vulnerable industrial area are difficult to estimate: most of the Main Program's office space would be concentrated along its northern and eastern edges, away from South of Market's industrial areas. YBC is also separated from these areas by the James Lick Skyway. Alternatives A and D, which would contain more office space than the Main Program, could contribute a greater office conversion stimulus to the area than would the Main Program. However, implementation of the Main Program or any of the YBC FEIR alternatives would probably contribute somewhat to land value speculation in the area. Other South of Market projects, such as the Rincon Point - South Beach Redevelopment project and the Mission Bay proposal (Southern Pacific), would be likely to have greater and more direct effects on industrial land speculation than would development of YBC./5/

2. LAND USE DESIGNATIONS AND ZONING

The Proposed Main Program and YBC FEIR Alternatives.

Development within YBC must conform to the Redevelopment Plan/6/; it is not required to conform with the City Planning Code. The Redevelopment Plan for Yerba Buena Center contains all the physical development provisions of the City Planning Code applicable at the time the Redevelopment Plan was adopted (August 13, 1979), except the bulk restrictions. The limitations on floor area bonuses contained in the Interim Controls, adopted by the Board of

Supervisors after the Redevelopment Plan was approved, do not apply in the YBC Redevelopment Project Area. The Main Program conforms with the standards for development as identified in the Redevelopment Plan (YBC Redevelopment Plan, pp. 5 - 9, and the Redevelopment Plan Map, amended 1981; see Figure 10, p. 59).

As a point of information, the proposed uses and rehabilitation of structures would be permitted uses under the City's zoning regulations. Housing is a permitted use in the C-3-0 and C-3-R districts; housing is permitted as a Conditional Use in the C-3-S and M-1 districts upon authorization by the City Planning Commission.

3. VISUAL IMPACTS

The Proposed Main Program and YBC FEIR Alternatives

The Main Program would be, visually, most similar to Alternative B, because of the similarity of uses on CB-2 and CB-3 and total floor space to be provided. The discussion of visual impacts of Alternative B, described on pp. 229 - 230 of the YBC FEIR, is hereby incorporated by reference. The visual impacts of other YBC FEIR alternatives are discussed on pp. 225 - 232 of the YBC FEIR.

As with all the alternatives for YBC, the visual impacts of the Main Program, by 1988, would differ from the present visual setting. By 1988, it is assumed that all the development would have taken place and vacant buildings and temporary parking areas would be replaced by various new medium- (four to six stories) and high-rise (over six stories) buildings. The change would not only be visible to passing pedestrians, but also from distant points (e.g. Potrero Hill, Twin Peaks) that look down on YBC. Sidewalks could be wider than the present sidewalks and street trees and landscaped areas would provide an improved street-level appearance. The focal point of YBC would be the Central Blocks because, as a unit, they occupy the most surface area in YBC, and are adjacent to all other YBC blocks except SB-4. Most of the other blocks would have a street front facing the Central Blocks. The dominant use or uses of the Central Blocks would influence the uses on these adjacent blocks.

The George R. Moscone Convention Center would act as a visual terminus for the continuing line of pedestrian plazas on CB-1 and CB-2. The RFQ required certain building coverage and height limits to be observed. These are described in the Land Use Impact section of this document, p. 104. On CB-1, the Main Program would produce a building density similar to that of Alternative A. The buildings, which would be hotels, housing, office and retail space, would be high-rise structures at the periphery of the block along Market, Third and Fourth Sts. The pedestrian plaza would occupy the central portion of CB-1, from Market to Mission Sts. The view of the block from CB-2 would be of a wide, covered pedestrian walkway at ground or slightly above-ground level, surrounded by high-rise hotel, residential and office buildings. The low-rise buildings adjacent to the pedestrian concourse or plaza would include the Jessie St. Substation and St. Patrick's Church. Continuous highrise buildings at the edges of CB-1 could give the block an imposing appearance from Market, Third and Fourth Sts. Any entrances to the block that do not visually stand out could appear uninviting. Once within the block, however, the low-density and open-space central corridor visually connecting CB-1, CB-2 and CB-3 would invite the pedestrian further into YBC.

The building coverage on CB-2, in accordance with the RFQ, would be limited to 40%. The pedestrian link to the Moscone Convention Center would be continued from Market St. along the central core of the block between Mission and Howard Sts. An elevated pedestrian walkway from CB-2 to CB-3 would be likely. Sixty per cent the land on CB-2 would be in form of "gardens" uses; landscaping would include grasses, shrubs and bushes, art work and sitting areas. The open expanse provided in this area would provide visual relief from the surrounding urban uses and the opportunity for the visitor, resident, or employee take leisurely walks, lunches, or watch performances. Depending on exact building layout of uses on CB-2, the entrance of the Moscone Convention Center could be visible to viewers located at Mission St. and would be enhanced by the landscaped areas provided on CB-2. Building heights would be limited to 80 ft. The block would be less intensely built-up than under alternatives A and D, but similar to the build-up in Alternative B. The proposed Main Program uses for this block would be more intense than

Alternative C, which proposed a 454,000-sq-ft. park and did not include the existing convention center. Under the Main Program, about 1,500 parking spaces and ballroom and exhibit space would be constructed underground and, therefore, have little visual impact. The garage entrances, air ducts and some of the ventilation system would be visible above ground. The underground uses are likely to extend under the entire block, and the parking garage may have two underground levels.

On CB-3, the Main Program would provide buildings with commercial entertainment and cultural uses on the rooftop of the Moscone Convention Center (up to 60% building coverage). The height of the buildings would be limited to 60 ft., in accordance with the RFQ. Public open space (82,000 sq. ft.) would also be provided. Although the building heights would be limited, the visual effect of buildings would draw attention from the entrance of the Moscone Convention Center. The proposed buildings would introduce a visual density greater than that of Alternatives A, B and C, which propose open space for the block. Under Alternatives A and B, this open space would be on top of the convention center. Alternative C did not include a convention center, but presumably would also have open space on top of the convention center if implemented now. Alternative D would have had about 3.2 million sq. ft. of downtown support services on CB-3. These uses would have been built at grade and did not include a convention center. Alternative D development would have been more visible than would the Main Program uses, or the other alternatives.

In the Main Program, the Eastern Blocks would contain mostly office, parking, and market-rate housing uses as well as 200,000 sq. ft. of cultural space. These uses would provide a visual edge for the park-like uses on CB-2 and CB-3. The buildings would be mostly new structures consistent with the uses now on the eastern end of the blocks. The 500 residential units included in EB-2 and EB-3 would probably be designed differently from nearby office buildings. Residential design elements might include balconies, openable windows and open courts or landscaped areas. The cultural space would result in a slightly greater building density on EB-2 than Alternatives B and D and a

density similar to that of Alternative A for the block. The square footages of new uses indicate that in general, structures would not be higher than under Alternatives B and D. Alternative C would have the least visual impact based on the building area proposed.

Housing, light industrial, office, and parking uses would be found in the Southern Blocks. The Southern Blocks would have about 45% (about 1300 units) of the total of 2870 housing units proposed by the Main Program. Housing would replace the present parking lots and vacant lots in the Southern Blocks. SB-2 would have a total of about 665 housing units; about 345 subsidized and 320 market-rate units. Proposed new housing on SB-2 would be along the south side of Folsom St. Depending upon the design and layout, this housing could result in the retention or obstruction of views of CB-3 and the downtown San Francisco skyline from the TODCO / Los Caballeros Dimasalang House (in the center of the block at Shipley and Lapu Lapu Sts.). On SB-3, 650 market-rate dwelling units could be provided under the Main Program. Designed with high-rise elements, this housing would capture the topographic advantage given the site by its position at the western edge of Rincon Hill and could provide dwelling units with views eastward to the Bay and Bay Bridge as well as westward over CB-2 and CB-3. Conversely, high-rises on SB-3 would be prominent in views from Rincon Hill and the Bay Bridge.

The Western Blocks are the most completely developed blocks in the YBC area. Only WB-3 would receive any new development: 95 subsidized dwelling units (Woolf House Phase III). Woolf House Phase II (70 subsidized dwelling units) is currently under construction on this block. Except for these two structures, the Main Program would not affect the Western Blocks as they are presently viewed.

Variants

Variant A, the Reduced-Housing/Increased-Office-and-Retail Variant for CB-1, would provide 900,000 sq. ft. of office space, 400,000 sq. ft. more than the Main Program, and reduce the amount of market-rate housing from 500 units to 200 units. It would provide 290,000 sq. ft. for retail commercial uses,

including a major department store, as compared with 200,000 sq. ft. of retail/commercial uses under the Main Program. The 490,000 sq. ft. of additional office and retail space would be greater than the square footage of the 300 eliminated dwelling units. Therefore, height and bulk of buildings on the block would be expected to increase under this variant. This would create a visual character of greater building density than under the Main Program. Pedestrian-level uses would remain retail commercial.

Variant B, the No-Housing Variant for CB-1, would result in no housing on the block (versus 500 units proposed in the Main Program). The overall density of development on the block would be decreased.

Variant C, the Housing Variant for CB-2, would add 300 housing units to the Main Program uses for CB-2. The 300 housing units would require additional floor space to be accommodated on this block. It is likely that this additional floor space would result in taller buildings on the block, because of the requirement that 60% of the block be preserved as open space (RFQ, p. 21). The greater height could increase the sense of enclosure around the proposed open spaces. All buildings on this block would remain under the 80-ft. height limit.

Variant D, the Increased Housing/Reduced Office Variant for EB-2 would increase the number of dwelling units from 300 in the Main Program to 700, and office space would be decreased from 700,000 sq. ft. in the Main Program to 300,000 sq. ft. Because the total floor space would remain about the same, the primary difference would be the architecture of the building, changing from an office high-rise to a high-rise residential building, and probably accented with more landscaping and open space. Overall, the visual impact of Variant D on EB-2 would be similar to that described under the Main Program for the Eastern Blocks.

FOOTNOTES

/1/ San Francisco Planning and Urban Research (SPUR), June, 1981, South of Market: A Plan for San Francisco's Last Frontier.

/2/ Peter Burns, Senior Residential Environment Inspector, Division of Apartment and Hotel Inspection, Bureau of Building Inspection, telephone communication, December 8, 1981.

/4/ Memorandum issued by Dean Macris, Director of Planning, entitled "South of Market Interim Controls," January 26, 1982.

/5/ Robert Reeves, Planner, Department of City Planning, telephone communication, March 24, 1982.

/6/ San Francisco Redevelopment Agency, Yerba Buena Center Redevelopment Plan, November 6, 1981.

B. HOUSING AND BUSINESS RELOCATION

1. Housing Relocation

The 1978 YBC FEIR, pp. 64-86 and 233-240 discusses the housing relocation impacts of the alternatives. Most of the current residential population in the YBC area is living in housing built subsequent to the relocation of the former residents. New housing units on WB-3 and SB-2, are in the Clementina Towers, Woolf House and TODCO / Los Caballeros Dimasalang House. Squatters have been observed sleeping in and near some of the buildings in the YBC area. These people would not be eligible for assistance from the Redevelopment Agency and the Housing Authority./1/

Neither the previously unreviewed uses proposed in the Main Program nor the variants would displace any legally occupied residential uses. Construction of the senior citizen housing on SB-2 and WB-3 are the beginning of a re-housing process that development of the Main Program or any of the variants would continue. Development of YBC would reestablish a day and night population in the area. For discussion of further effects, see Section XI. Growth Inducing Impact, p. 227.

2. Business Relocation

The YBC FEIR, p. 241, discusses the business relocation impacts of the YBC FEIR alternatives. Within the YBC area, 58 businesses remain to be relocated. There is no formal schedule for relocating businesses, but it is anticipated that the majority of the businesses would be relocated by 1983 or 1984./2/ Neither the unreviewed uses nor the variants would introduce new impacts.

FOOTNOTES

/1/ Peter Theodore, Assistant Supervisor, Residents Service. San Francisco Redevelopment Agency, telephone communication February 4, 1982.

/2/ Mrs. M. Yamamoto, Secretary to Chief of Rentals, San Francisco Housing Authority, telephone communication, February 4, 1982.

C. SOCIAL CHARACTERISTICS

The Proposed Main Program and YBC FEIR Alternatives

The Main Program establishes mixed uses similar to those in the YBC Alternatives A and B. Socially, the most important changes in the Main Program over the YBC FEIR alternatives relate to the mix of visitors and residents within YBC. Alternative A would include 700 hotel rooms; the Main Program would include about 2,200 hotel rooms on CB-1. The Main Program would provide almost twice as many market-rate dwelling units (1,970) as provided under any of the YBC FEIR alternatives (1,000 under Alternative C). The light industrial, office space, and downtown support uses each have less floor area in the Main Program than in Alternatives A, B, and D. This would mean that the area would attract more visitors and residents under the Main Program than would any of the YBC FEIR alternatives. The ratio between subsidized dwelling units and the market-rate units in the Main Program would be about 1:2. It is anticipated that, overall, the residential population in YBC would be increased from the present population of about 1,000 to about 5,000./1/ Cultural and entertainment activities would contribute to drawing nighttime activity to the Central Blocks.

The primary uses on CB-1 under the Main Program would be 500 market-rate dwelling units, 2,200 hotel rooms and 590,000 sq. ft. of office uses. The social characteristics of the housing and hotel rooms were discussed in the First YBC EIR Supplement, pp. 44-45, which is hereby incorporated by reference. Development of CB-1 under the Main program would encourage growth in the area's commercial services, retail uses, and entertainment facilities.

The Main Program uses for CB-2, including space for cultural uses, recreation, and entertainment, would attract day-time and early evening visitors to the block. CB-2 would become an activity center. In this respect, Main Program effects on social characteristics of CB-2 would be similar to those proposed under Alternative B in the YBC FEIR.

The cultural, entertainment and retail commercial space proposed for CB-3 under the Main Program would probably attract visitors to the block in addition to those drawn by the convention center alone, but would not change the visitor-oriented character of the block. CB-3 would have visitor-oriented uses under Alternatives A and B, but not under Alternative C (which proposed a park) or Alternative D (which proposed over three million square feet of downtown support uses on the block).

The 200,000 sq. ft. of cultural space (possibly a major museum) proposed for EB-2 under the Main Program would attract more visitors to the block than would any of the YBC FEIR alternatives. EB-2 would include a mix of office workers, visitors, and residents (about 600 persons). This would establish both day and night use, which would increase the number of pedestrians over the number there currently and generate a diverse group of people seeking various destinations on the block. The proximity of these uses may create an environment which is too active for residents desiring a more passive and less congested environment. The extent of this effect is unpredictable and would depend upon the perceptions and actions of residents.

The Main Program proposes 320 market-rate dwelling units not reviewed in the YBC FEIR in addition to about 350 previously reviewed subsidized dwelling units on the block. The proposed 320 market-rate housing units would probably be occupied by employed adults, with an average of 2.0 persons per unit (YBC FEIR, p. 245). Residents would be of mixed income and age groups, low-income elderly in subsidized units, and employed adults and a small number of families in the market-rate units. These groups would create a heterogeneous community. About 650 market-rate dwellings are proposed on the adjacent block, SB-3. Together, housing on SB-2 and SB-3 would encourage the development of neighborhood-serving retail stores and services on and near these blocks.

Variants

Variant A, the Reduced-Housing/Increased-Office-and-Retail Variant for CB-1, would provide 900,000 sq. ft. of office space, 400,000 sq. ft. more than the Main Program, and reduce market-rate housing from 500 units in the Main Program to 200 units. It would also provide a total of 290,000 sq. ft. of retail/commercial space, including a department store, as compared with 200,000 sq. ft. of retail/commercial uses under the Main Program. Under this variant, most of the retail commercial space on the block would be devoted to the department store. Less small-scale retail commercial space, such as grocery stores or laundromats, would be available to serve residents than under the Main Program. However, there would also be fewer residents. The housing units (as indicated on p. 44 of the First YBC EIR Supplement) would probably be occupied by employed adults, with an average of 2.0 persons per unit (YBC FEIR, p. 245). Because only 200 housing units are proposed in this variant it is possible that the nearby blocks could meet its residential service demand.

In Variant B, the No-Housing Variant for CB-1, there would be no housing on the block. The rest of the Main Program uses would remain. Similarly, Alternatives A and D would provide no housing on CB-1. Retail commercial space on the block would be oriented toward a visitor or employee clientele;

food-service and restaurant outlets would probably locate on the ground or upper floors of office buildings. Office workers would use or walk through nearby public open space during morning, noon-time, and late afternoon hours, coinciding with movement to work, lunch hour, and to home.

Variant C, the Housing Variant for CB-2, would provide 300 market-rate housing units; the Main Program would not provide any housing units on CB-2. The housing units would probably be occupied by employed adults, with an average of 2.0 persons per unit (YBC FEIR, p. 245). This would add to the mix of residents in the area. Residents of mixed income and age groups (low-income elderly and families to the west and south, employed adults to the south, east and north) would be part of a heterogeneous community.

Variant D, the Increased-Housing/Reduced-Office Variant for EB-2, would increase the number of dwelling units from 300 to 700, and would decrease office space from 700,000 sq. ft. to 300,000 sq. ft. The possible incompatibility of diversified users on the block may create a condition similar to that described in the discussion of Social Characteristics for EB-2, p. 123.

Social Characteristics in the Vicinity of YBC

Projections of social effects of the Main Program and YBC FEIR alternatives in this section are highly speculative, since the data bases available (primarily the preliminary U.S. Census data) are inadequate to produce specifically local projections of trends. The following discussion outlines potential and plausible futures for the area immediately west (Fifth to Seventh Sts.) of YBC. This area is identified in the Land Use in the Vicinity of YBC Section, p. 109, as that most susceptible to YBC-induced land-value speculation.

Yerba Buena Center is the largest redevelopment project currently underway in San Francisco. The proposed Main Program for YBC would bring with it a population of office workers, visitors (to the existing George Moscone Convention Center, and to the proposed "gardens" on CB-2, the commercial

entertainment and amusement uses, the hotels, the cultural uses and the retail commercial uses) and permanent residents (in 1,970 market-rate dwelling units and 900 subsidized dwelling units). This population, as well as the introduction of new structures and public open spaces, would contribute to making areas immediately to the west of YBC more attractive than they have been for real estate speculation and development. Both the Main Program and the YBC FEIR alternatives propose predominantly housing along YBC's western and southern edges. This housing could make the area immediately west of YBC and south of Howard St. attractive for additional new or renovated housing (see Land Use, p. 111). Although it is likely that continuing downtown office growth and its accompanying housing demand would eventually bring these development pressures to bear on the area west of YBC with or without the Main Program, the Main Program could act as a catalyst for this process by making this area more "respectable." Alternatives B and C both propose more housing along YBC's western edge than does the Main Program; these alternatives may have a greater effect on attracting new housing west of YBC.

Increasing the attractiveness of this western area for housing, and thus increasing land values, would encourage renovation of housing and possibly contribute to immigration of more affluent social groups. A threshold level of renovated housing could contribute to attracting new residential development. Persons moving into the new or renovated housing are likely to be willing to pay more for housing than current area residents would be able to afford. It is likely that the new residents would also be willing to pay more for retail-commercial services. Current residents, primarily Filipino families, who may not be able to compete in these markets might be displaced. The elderly residents nearest YBC live primarily in subsidized apartment complexes, and so would be largely insulated from increasing housing prices. The elderly might be affected by rising retail-commercial costs. Since the elderly are not easily mobile and there are few other areas in the City where they could go, most would elect to stay and absorb retail-commercial cost increases not covered by Social Security or other income by reducing consumption. It is likely that the Sixth St. "Skid Row" area would be resistant to land value speculation and new residential development. The Residential Hotel Conversion Ordinance (Ordinance 330-81) prohibits demolition

or conversion of residential hotel units, reducing their attractiveness to land developers. The transients and the "Skid Row" image of the neighborhood would also work to limit the attractiveness of converting other uses. Some neighborhood-serving uses on Fifth St. between Howard and Market Sts., one block away, may convert to tourist and conventioneer-serving uses (see Land Use in the Vicinity of YBC, p. 111). Whether or not this would affect the transients is uncertain. The Sixth Street "Skid Row," if it remained intact, could act as a buffer zone between property of increased value in the area toward YBC to the east and a more stable low-income area to the west.

The Residential Hotel Conversion Ordinance, although effectively controlling conversion of residential hotels, does little to alleviate the underlying economic problems of residential hotel operations and ownership. According to a November, 1980, Department of City Planning Study/2/, many residential hotels would have to charge very high rents to both provide decent, safe, and sanitary shelter and to break even financially. Given higher rates of return on alternative uses of the sites where many hotels are now located, some package of economic incentives, subsidized loans, and alternative ownership forms may be necessary to offset the poor economic prospects of these sites for residential hotels if land values in neighboring areas rise./2/

Residential displacement attributable to rising rents would be partially offset by the City's rent stabilization ordinance (Ordinance 276-79) which limits rent increases to 7% per year. This Ordinance was amended, effective April 1, 1982. The amendment changed the burden of enforcement from the tenants to the landlords; landlords must first obtain permission from the Rent Stabilization Board before increasing rents more than 7% per year. The rent stabilization ordinance would benefit long-term residents of the South of Market area who have lived in the same residential hotel unit or apartment more than one year; the rent stabilization ordinance does not protect units that have a change of occupancy. If rents of the units having a change of occupancy were to increase in a manner similar to historic rent increases in the Tenderloin (no comparable data are available for South of Market), then rents for apartment units would increase between 13% and 17% each year and rents for residential hotel units between 0% and 7% per year.

Overall, it is likely that the land value increase and possible displacement effects of the Main Program or any of the YBC FEIR alternatives on the area immediately west of YBC would be modest. Almost all of the land uses along YBC's western edge that are part of each of these YBC programs are already complete and operational. The rate of real estate transactions in the area immediately west of YBC, however, has remained nearly constant for about the past 15 years (see Sales Trends, p. 56), indicating that little real estate speculation has occurred. Completion of YBC, however, may introduce a land value stimulus that does not currently exist. Should this occur, those most likely to be affected are low-income Filipino families residing along small side streets between Fifth and Seventh Sts., and between Howard and Harrison Sts.

FOOTNOTES

/1/ The market-rate dwelling units (DU) are expected to have an average household size of 2.0 persons and the subsidized units for the elderly are expected to have an average of 1.15 persons per household.

/2/ San Francisco Department of City Planning, November 1980, A Study of the Conversion and Demolition of Residential Hotel Units.

D. ECONOMICS

1. GENERALIZED ECONOMIC IMPACTS

The overall economic impacts which would be experienced under the proposed Main Program or any of the YBC alternatives, changes in the relative importance of the YBC vicinity and other existing centers of recreation and commerce, and income-oriented changes due to the completion of the proposed developments are presented in Section VI.D., YBC FEIR, pp. 248 - 252.

2. EMPLOYMENT

The Proposed Main Program and YBC FEIR Alternatives

Employment in YBC in 1988 under the Main Program is projected using gross-area-per-employee ratios developed for the YBC FEIR (see Section D. YBC FEIR Appendices), p. 29, and the proposed uses and densities./1/,/2/ Ratios for the cultural uses (which were not a part of the YBC alternatives) were developed./3/ In 1988 the Main Program would provide a total of about 25,000 permanent jobs. This figure compares to between 15,600 jobs (Alternative C) and 44,800 jobs (Alternative D) for the YBC alternatives. Table 11 presents employment in 1988 by occupational category for the YBC FEIR alternatives and the proposed Main Program. Office use would account for about 80% of these jobs. About 86% of these jobs would be located on five blocks: CB-1 (4,400 jobs), EB-1 (2,500 jobs), EB-2 (3,200 jobs), EB-3 (4,800 jobs), and SB-2 (2,800 jobs). Most of the proposed office space would be located on these blocks.

Based on a total-jobs to direct-jobs ratio of 2.4:1, each new direct job in YBC would create about 1.4 new indirect jobs in the Bay Area (see Section VI. D. YBC FEIR, pp. 251a-251b)./4/ Using this projection, the Main Program would create about 35,000 indirect jobs, for a total of about 60,000 direct and indirect jobs. The number of new direct and indirect jobs created by the YBC FEIR alternatives would range between 37,400 (Alternative C) and 107,400 (Alternative D). It should be noted that these figures for Alternatives C and D do not include jobs created by the existing Moscone Convention Center, because the center was not included as a part of those alternatives.

Construction activity under the four YBC FEIR Alternatives would range between 4,400 person-years (Alternative C) and 13,900 person-years (Alternative A). Construction employment for the Main Program cannot be estimated at this time because construction cost data for all of the Main Program are not available. Construction on blocks CB-1, CB-2, CB-3, and EB-2 alone under the Main Program would generate about 10,000 person-years of labor. Alternatives A, D, B, and C would generate 13,900 person-years, 12,800 person-years, 8,400 person-years

TABLE 11: PERMANENT ON-SITE EMPLOYMENT BY LAND-USE, 1988

Use	YBC FEIR ALTERNATIVES				MAIN PROGRAM
	A	B	C	D	
Office	31,000	16,700	10,600	18,100	16,300
Retail	900	400	200	400	1,000
Light Industry	2,200	700	700	3,100	300
Downtown Support	-	-	-	19,000**	30
Convention Center	200	200	-	-	200
Rec/Ent. Park	10***	1,600	20***	-	-
Hotel	-	-	-	-	1,600
Other*	<u>4,600</u>	<u>4,100</u>	<u>4,100</u>	<u>4,100</u>	<u>5,700</u>
TOTAL	38,800	23,700	15,600	44,800	25,000

* Includes employment related to following uses: institutional, pedestrian concourse, parking, cultural activities, commercial entertainment, and includes current on-site employment (4,100).

** Based on 6,340,000 sq. ft. of development, with employment calculated on the basis of 60% office, 30% retail and 10% services.

*** These numbers apply to the public park.

NOTE: Alternatives C and D do not include the existing convention center. Totals may not add due to rounding.

SOURCE: YBC FEIR and Environmental Science Associates, Inc.

and 4,400 person-years, respectively, for all of YBC. At most, about 5,000 full-time construction employees would be working on blocks CB-1, CB-2, CB-3, and EB-2 at any one time during the two year construction period for the Main Program. Based on a construction-worker-indirect-employment multiplier of 1.0 for indirect jobs/4/, construction activity on CB-1, CB-2, CB-3, and EB-2 would generate about 10,000 person-years of indirect labor in the Bay Area, for a total of about 20,000 person years of direct and indirect labor.

Variants

Implementing Variant A, the Reduced-Housing/Increased-Office-and-Retail Variant for CB-1 would generate about 1,800 new direct, permanent jobs in addition to those generated by the Main Program, because this variant would contain about 400,000 more square feet of office space and 90,000 more square feet of retail space than the Main Program. (Reducing the number of housing units would not substantially affect on-site employment.)

Including Variant A in the Main Program would increase on-site direct employment in YBC as a whole to about 25,200 jobs (an increase of 7% over the Main Program as proposed) and indirect employment to about 35,200 jobs, for a total of about 60,400 direct and indirect jobs. Construction employment is likely to increase because the additional department store and office space would probably offset the reduction of 300 housing units under this variant.

Implementing Variant B, the No-Housing Variant for CB-1, would reduce the total Main Program permanent employment by fewer than ten jobs. This situation results because the only difference between Variant B and the Main Program is the elimination of market-rate housing in Variant B./1/ This change would decrease construction employment.

Because Variant C, the Housing Variant for CB-2, differs from the Main Program solely by including market-rate housing on CB-2, permanent employment resulting from this variant would not change from that under the Main Program./1/ Construction employment would increase.

Including Variant D, the Increased-Housing/Reduced-Office Variant for EB-2, in the Main Program would generate about 1,600 fewer jobs than would the Main Program, because this variant would contain about 400,000 fewer square feet of office space. Total YBC direct employment would decrease by about 6% to about 23,400 jobs. Construction employment would not change substantially because construction of additional dwelling units would probably offset construction of less office space.

3. AREA FINANCING

The direct and indirect financial impacts of the development of YBC are discussed in Section VI.D, YBC FEIR, pp. 258-274. Revenue generated by the hotel tax is discussed in Section A-VI.D, First YBC EIR Supplement, pp. 46-47. The bulk of this revenue would go toward bond redemption of the George R. Moscone Center and for financing low-income housing in YBC. The 2,200 hotel rooms proposed for CB-1 would generate about \$4.52 million annually in total hotel tax revenues at the current tax rate of 9.75%. As specified by ammended City Ordinance 251-78, approximately \$1.85 million (41%) of these hotel tax revenues would be allocated for the construction and bond redemption of the George R. Moscone Convention Center; \$230,000 (5.1%) for Candlestick Bond debts and \$230,000 (5.1%) for financing low-income housing in the YBC Redevelopment Project Area. Adjusting for the Proposition O surcharge and assuming the remaining amount would be distributed similarly to the 1980-81 fiscal year, about \$564,000 (15.0%) would be budgeted for the Hotel Publicity and Advertising Fund and about \$1.72 million (38%) would accrue to the City's General Fund.

4. PUBLIC SERVICE COSTS

Public service costs for the YBC FEIR alternatives are discussed in Section A-VI. D, First YBC EIR Supplement, p. 47. Providing services and utilities to the Main Program would require no additional capital facilities or staff for any affected agency or utility (see Section E. Community Services, pp. 138 - 149). Substitution of any of the variants for the Main Program uses would cause no change.

5. CUMULATIVE HOTEL DEVELOPMENT

The cumulative impact of developing the hotel rooms proposed in the Main Program and other hotels in downtown San Francisco is discussed in Section A-VI.D, First YBC EIR Supplement, pp. 47-50. About 5,900 new hotel

rooms have been approved or proposed in the downtown hotel district. According to the San Francisco Convention and Visitors Center, there would be sufficient demand to absorb these new hotel rooms./5/

6. HOUSING

The Proposed Main Program and YBC FEIR Alternatives

The Main Program and the YBC FEIR alternatives would increase demand for office-worker housing in San Francisco. It is estimated that 15% to 30% of the people who would become employed in San Francisco as a direct result of provision of office space in the Main Program of YBC FEIR alternatives would move into San Francisco./6/ Because implementation of the Main Program would generate about 10,600 new office jobs (this estimate does not include jobs in existing office space in YBC), about 1,580 to 3,170 workers would move into the City as a result. It is estimated that there are an average of 1.4 Downtown workers in each San Francisco household that contains Downtown workers./6/ Therefore, the Main Program would directly result in about 1,130 to 2,260 households moving into San Francisco. These new households are represented as "dwelling units demanded" in Table 12, below. Those units demanded by new office workers under the YBC FEIR alternatives are also shown in Table 12.

Table 12 indicates that Alternatives A, B and D would not provide enough housing within YBC to meet the demands of its office workers. Alternative C and the Main Program would have enough housing to meet YBC office worker demand, if it is assumed that all housing provided by Alternative C or the Main Program would be available to these office workers. Probably few office workers, if any, would be eligible for the subsidized elderly housing in YBC; therefore, if subsidized housing is not included in the calculation, Alternative C would have an unmet housing demand of about 0 to 37 units, and the Main Program would have an unmet demand of 0 to about 291 units. In this case, both the Main Program and Alternative C might be able to satisfy the housing demands of its office workers.

TABLE 12: PROJECTED HOUSING DEMAND IN SAN FRANCISCO OF TO-BE-BUILT YBC OFFICE DEVELOPMENT*

	YBC FEIR ALTERNATIVES				MAIN PROGRAM
	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	
Dwelling Units Demanded**	2,710 to 5,420	1,200 to 2,350	520 to 1,040	1,320 to 2,650	1,130 to 2,260
Dwelling Units Proposed					
Subsidized	353	653	653	353	365
Market Rate	50	650	1,000	0	1,970
TOTAL UNITS	403	1,003	1,653	353	2,335
Excess Demand***	2,300 to 5,010	170 to 1,350	0 to 0	970 to 2,290	0 to 0

* Existing office space and housing in YBC are not included in the calculation of excess housing demand, because it is assumed that existing office workers have housing and that existing housing is meeting an existing demand. The office space and housing listed as "existing" in Table 1, p. 32 has been subtracted, therefore, from the land use totals in Table 2, p. 35 for the YBC FEIR alternatives and the Main Program. The remaining office space and housing, consisting of those uses proposed or under construction, are included in the housing demand calculation.

** Assumes that 15% to 30% of the people employed by the project would move to San Francisco, and that there would be an average of 1.4 Downtown workers in each San Francisco household that contains Downtown workers. These projections are based on research done by Recht Hausrath Associates for the 101 Montgomery Street FEIR (EE 80.26, State Clearinghouse No. 80122308), May 7, 1981.

***These figures are "demand" minus total units proposed (includes both market-rate and subsidized units). The "excess demand" is presented as a range, because the estimating method used to generate "demand" produces a range (see **). If the lower number in the "excess demand" range is greater than zero, then housing demand cannot be satisfied in YBC. If the lower end of the range is zero and the upper end greater than zero, then housing demand may or may not be satisfied within YBC. If both the lower and upper ends of the "excess demand" range are zero, then housing demand could be satisfied within YBC.

SOURCE: Environmental Science Associates, Inc.

City Policy/7/ Housing Requirements

The San Francisco City Planning Commission has adopted a policy of requiring office building developers, when appropriate, to cause housing to be built in order to meet the demand for housing for new San Francisco office workers. The interim guidelines for this policy/7/ specify a formula for estimating the appropriate housing supply to meet the housing that employees of new office development would demand in terms of bedrooms. Housing credited to an office development is based on the number of bedrooms constructed or otherwise supported by an office developer. Each bedroom constructed by the developer in market-rate housing is counted as one "credit." Housing to which the developer contributes to maintain as subsidized low- or moderate-income housing can be given multiple credits for each bedroom constructed.

Existing office space and housing in YBC are not included in the calculation of these requirements, because the Guidelines are applicable only to new development and they do not provide credit for existing housing. All office space and housing proposed or under construction is included in the calculation. The office space and housing listed as "existing" in Table 1, pp. 32 - 34 has been subtracted, therefore, from the land use totals in Table 2, p. 35 for the YBC FEIR alternatives and the Main Program. The remaining office space and housing are the basis for the housing requirement calculations. Under the Main Program or any of the YBC FEIR alternatives the proposed market-rate bedrooms constructed would each qualify as one credit. Each bedroom constructed in the proposed subsidized housing for the elderly, however, would be counted as two bedrooms or credits. Including the subsidized units, the Main Program and Alternative C would both meet their housing requirements under City policy/7/. Alternatives A, B, and D would not meet their housing requirements, having a deficiency of about 4,770 credits (bedrooms), 30 credits and 2,010 credits, respectively.

Variants

Including Variant A, the Reduced-Housing/Increased-Office-and-Retail Variant for CB-1, in the Main Program would reduce the amount of housing in the Main Program (by 300 market-rate units), while increasing the amount of office

space (by 400,000 sq. ft.). Using the housing demand methodology shown in Table 12, the resulting unmet office-worker housing demand would be 0 to 570 units; the upper range of this demand would be higher than under the Main Program. This variant, however, might be able to satisfy the San Francisco housing demand generated by the project. If market-rate units only could be used to house office workers, the San Francisco housing demand might still be met in YBC (the unmet demand would be 0 to 934 units).

Including Variant B, the No-Housing Variant for CB-1, in the Main Program would not change the units demanded by the Main Program as proposed, but would reduce proposed on-site market-rate housing by 500 dwelling units. The resulting unmet housing demand would range from about 0 to 430 dwelling units. As in Variant A, above, the upper range of this unmet demand would be greater than under the Main Program. The variant might satisfy its San Francisco housing demand. If market-rate units only could be used to house office workers, the housing demand might still be met in YBC (the unmet demand would be 0 to 791 units).

Including Variant C, the Housing Variant for CB-2, would not affect the housing demand and would increase on-site housing by 300 dwelling units to 3,170 dwelling units. There would be no unmet housing demand if all YBC housing were available to office workers, and no unmet housing demand if only market-rate housing were available.

Variant D, the Increased-Housing/Reduced-Office Variant for EB-2, would reduce the amount of office space in the Main Program by 400,000 sq. ft. to 3,672,000 sq. ft. and would increase total YBC housing by 400 units to 2,735 units. This would reduce office-worker housing demand by a range of about 570 to 740 units. There would be no unmet housing demand if all YBC housing were available to YBC office workers. If only market-rate housing were available, there would also be no unmet housing demand.

FOOTNOTES

/1/ Employment attributable to housing (i.e. maintenance and security personnel) has not been included in this analysis in order that the information in this Supplement could be compared to the YBC FEIR.

/2/ The factors used to estimate the permanent employment in the project area are as follows:

Office: 1 employee per 250 sq. ft. of floor space, plus 1 maintenance employee per 20,000 sq. ft.

Retail: 1 employee per 800 sq. ft. of floor space.

Apparel Mart: 1 employee per 1,000 sq. ft. (wholesale only).

Light Industrial: 1 employee per 500 sq. ft.

Convention Center: 65 employees.

Commercial Recreation (indoors): 1 employee per 600 sq. ft.

Recreation/Entertainment Park: 92 employees per acre.

Hotel: 1 employee per 1.4 rooms.

Public Parking: 1 employee per 170 parking spaces. (1 space = 350 sq. ft., including circulation areas.)

Pedestrian Concourse and Park: 0.75 employee per acre (43,560 sq. ft.)

/3/ Reliable employment factors were not available because the nature of cultural uses proposed for the YBC site has not been described in detail, and employment at cultural activities varies on an activity-by-activity basis. For the purposes of this report, a maximum employment of about one employee per 500 square feet of gross area was assumed.

Employment at existing institutional uses that would be retained in the proposed program (e.g. Downtown City College) was determined in interviews with staff of all existing institutional uses.

/4/ YBC FEIR ratios were used in this Supplement to allow comparison of employment generated by the YBC FEIR alternatives and the proposed Main Program. The current Finance Insurance Real Estate (FIRE) workers ratio is 2.6:1 (total-jobs:direct-jobs; this is equivalent to 1.6:1 indirect-jobs:direct-jobs).

/5/ Hotel Ramada EIR (EE.80.171, State Clearinghouse No. 80092315), January 29, 1981, pp. 101-102.

/6/ From research done by Recht Hausrath Associates for the 101 Montgomery Street FEIR (EE 80.26, State Clearinghouse No. 80122308), May 7, 1981.

/7/ "The San Francisco Office/Housing Production Program Interim Guidelines for Administering the Housing Requirements Placed on New Office Developments" January 22, 1982.

E. COMMUNITY SERVICES

1. WATER

The Proposed Main Program and YBC FEIR Alternatives

The YBC FEIR discusses the water system impacts of the YBC FEIR alternatives on p. 292. As discussed in the Community Services section, p. 74, alterations to local mains necessary to accommodate the convention center have been completed. The existing mains have sufficient capacity and pressure to serve the Main Program and there would not be a need for any further improvements to the water treatment and supply system other than connecting the new buildings to the mains./1/

2. SEWERS AND SEWAGE

The Proposed Main Program and YBC FEIR Alternatives

The YBC FEIR discusses the sewer and sewage impacts of the YBC FEIR alternatives on pp. 292-296. Projected total daily sewage generation, by type of land use, is shown for the Main Program and compared to the YBC FEIR alternatives in Appendix B, Table B-1, p. 247. It is assumed for estimating purposes that 100% of YBC water consumption, other than that used for irrigation of landscaping, would be discharged into the sewers as liquid waste. (YBC FEIR, p. 293).

The Main Program uses would generate a total of about 1.77 million gallons of wastewater per day (MGD), about 4% of the capacity of the North Point Water Pollution Control Plant. /2,3/ This is 18% more wastewater than would be generated by YBC FEIR Alternative D. Alternative D would have allowed the greatest amount of development of the YBC FEIR alternatives and would have generated about 1.48 MGD (excluding wastewater from the existing convention center which was not proposed under Alternative D).

San Francisco's sewer system is a "combined" system: the set of underground conduits accepts both sewerage and surface rainwater runoff. The sewers have the capacity to handle the runoff of the five-year storm, which is San Francisco's design criterion. The dry-weather sewerage flows alone remain well below the capacity of the combined system, and so are not considered the limiting factor in sewer design. It is not anticipated that any improvements would be required to serve the Main Program./3/ The Main Program would, however, generate additional wastewater flows to City treatment plants, and contribute to existing overflows into the Bay until completion of the City's wastewater management system.

The YBC area is generally flat and could be subject to flooding in periods of rain that exceed the five-year storm. Also, the area's sewers collect silt, because of their shallow gradient, which could add to flooding hazards if the mains are not maintained./3/

Variants

Projected total daily wastewater generation, by type of land use, is shown for the Main Program and compared to the variants in Appendix B, Table B-2, p. 248. It is assumed for estimating purposes that 100% of YBC water consumption, other than that used for irrigation of landscaping, would be discharged into the sewers as liquid waste (YBC FEIR, p. 293).

The Main Program would generate a total of about 1.77 million gallons of wastewater per day./2/ Two of the the variants would generate a greater amount of wastewater: with Variant C, the Housing Variant for CB-2, the YBC area would generate about 1.83 million gallons of wastewater per day, and, with Variant D, the Increased-Housing/Reduced-Office Variant for EB-2, the YBC area would generate about 1.80 MGD./2/ This would be approximately an additional 60,000 and 30,000 gallons per day, respectively. A third variant, Variant A, the Reduced-Housing/Increased-Office- and-Retail Variant for CB-1, would generate approximately the same amount of wastewater as would the Main Program. The San Francisco Clean Water Program would be able to accommodate the projected wastewater of the variant uses without any system improvements./3/

3. ELECTRICITY AND GAS

The Proposed Main Program and YBC FEIR Alternatives

The impacts on electricity and gas service of the YBC FEIR alternatives are described on pp. 296-297 of the YBC FEIR.

The existing gas and electric facilities have sufficient capacity to serve the Main Program. Major extensions of gas or electric lines from outside the area would not be necessary. Some excavations in the streets would be needed to provide service from the existing distribution facilities to new buildings. All facilities would be installed underground./4/

4. SOLID WASTE

The Proposed Main Program and YBC FEIR Alternatives

The impacts of the YBC FEIR alternatives on domestic solid waste are described on pp. 297-299 of the YBC FEIR. Table B-3, Appendix B, p. 249 shows the projected total daily and annual solid waste generation, by land use, for the Main Program and the YBC FEIR alternatives.

The Main Program would generate about 15,000 tons of solid waste per year, which would be more than that generated by Alternatives B and C, but less than that generated by Alternatives A or D. Alternatives A and D would generate about 22% and 17% more solid wastes, respectively, than would the Main Program. The Main Program, when compared with Alternatives B and C, would generate about 33% and 425% more solid waste, respectively. The figures for Alternatives C and D do not include the existing convention center.

Disposal of municipal solid waste presently occurs at the landfill site in Mountain View. The City's contract with this facility expires in October 1983. The City is presently negotiating with other landfill sites to accept San Francisco's solid waste on an interim basis until a solid waste program is implemented in late 1986. The solid waste program is proposed to consist of intensified recycling, a resource recovery project generating electricity from the incineration of solid wastes and landfill disposal of bypass and residual wastes from the resource recovery process. The Main Program and cumulative development in San Francisco outside of YBC are not expected to present problems in solid waste disposal upon completion of the solid waste program./5/

The Golden Gate Disposal Company has the capacity and equipment to serve the Main Program including all of the previously unreviewed uses or variants./6/ Table B-4, Appendix B, p. 250 compares the impacts on solid waste generation of the variants with the Main Program.

5. COMMUNICATIONS

The Proposed Main Program and YBC FEIR Alternatives

The YBC FEIR discusses the effects on telephone service, courier service, and postal service of the YBC FEIR alternatives on pp. 300-302.

To provide service for the Main Program, it may be necessary to reinforce the underground telephone conduit structure in Fourth St. between Folsom and Harrison Sts., and in Harrison St. between Third and Fourth Sts. All other

underground structures would be adequate. It would be necessary to place entrance conduits to all proposed residential or commercial buildings; this would require excavation in the street and sidewalks./7/ As for the YBC FEIR alternatives, courier services would expand to meet any increased demand generated by the Main Program (YBC FEIR, p. 301). Alternatives A and D would have the highest level of office, downtown support and commercial uses and, thus, would have the greatest impacts on communication services. The Main Program would have about half of the impact associated with Alternatives A and D. The impacts of Alternative B would be similar to those of the Main Program and, though probably less, the difference would not be discernable. Alternative C would have the least impact on communication services. Impacts associated with Alternatives C and D do not include the existing Moscone Convention Center.

Variants

The variants would not change the type of impacts associated with the Main Program. The Reduced-Housing/Increased-Office-and-Retail Variant for CB-1 would have the greatest impact, followed in order by the No-Housing Variant for CB-1, the Increased-Housing/Reduced-Office Variant for EB-2 and the Housing Variant for CB-2.

6. POLICE

The Proposed Main Program and YBC FEIR Alternatives

The YBC FEIR discusses potential impacts on police services on pp. 302 - 304. The discussion notes that the effects on police services would depend on the design of structures and their security systems, the mix of people in the area and the character of the neighborhood as it develops.

In a letter dated 8 February 1978, former Chief of Police Charles R. Gain stated, "it is the opinion of my staff that it is not possible to estimate, with any accuracy, the impact that the facilities planned for in Yerba Buena

Center would have on police services. It is their belief that the number of calls for services, incidents, and subsequent costs on the Police Department would depend in large part on the neighborhood as it develops and not just based on the increase in population." YBC FEIR p. 302. Sergeant Paul Libert recently confirmed this opinion./8/

It is likely that the number of crimes committed in YBC would increase initially, as more residents, uses and activities begin to establish themselves in YBC. As development progresses, however, and uses and activities become established throughout YBC, it is likely that the number of crimes against persons would decrease. At full development, crimes against persons in YBC may be fewer than they are now, because of the security of heavy pedestrian traffic. The occurrence of crimes against property, such as shoplifting and theft, would likely be greater after development of YBC than currently.

7. FIRE

The Proposed Main Program and YBC Alternatives

The fire protection impacts of the YBC FEIR alternatives are discussed on pp. 304-305 of the YBC FEIR. They are summarized below:

The fire protection requirements of each alternative could be met by the San Francisco Fire Department without any increases in staff or equipment. No high-pressure water lines would have to be relocated, replaced, or installed. Questions of safety of the large crowds expected in the convention center under Alternatives A and B were the primary concern of the Fire Department.

The expected daily fire protection requirements of the Main Program could be met by the San Francisco Fire Department, without any increase in personnel or equipment. With the exception of a major fire or disaster, the existing resources would be adequate. The existing fire flows and fire hydrant locations in the area are also adequate (see Figure B-4, Appendix B, p. 246).

However, the department is concerned about a possible increase in service needs due to the cumulative effects of all the projects which are being developed in the South of Market St. area./9/

San Francisco is experiencing ongoing development in the Downtown area, including some parts of South of Market. Approved and under construction office development in Downtown San Francisco would add over 8.5 million sq. ft. of gross floor area to the Downtown area. Cumulative office development in Downtown San Francisco, with the exception of Redevelopment Agency projects, is shown in Appendix A, Table A-1, p. 237. In addition, over 9 million sq. ft. of new office space was under formal review as of October, 1981. YBC would add another 4.7 million sq.ft. of office space to this total. It is likely that the number of fire incidents would increase with the number of people occupying the downtown area./10/

The Fire Department stated that it is difficult to tell whether or not the replacement of older low-occupancy structures with higher quality, greater occupancy high-rise buildings has a measurable beneficial or detrimental effect on the need for fire protection. High-rise buildings built after 1975, and those retrofit to meet the 1975 state standards are safer than those built before 1975 and not retrofit to meet the standards. They are more resistant to the spread of fire and contain alarms and sprinkler systems to more rapidly control fires. However, because newer high-rises tend to contain more people per building than older buildings, a fire anywhere in the building exposes more people to possible hazards than would a fire in an older, lower-occupancy structure. In some cases, newer high-rise buildings present access difficulties. In addition, the Fire Department has observed that some new buildings contribute to increasing false alarm runs due to malfunctioning alarms and smoke detectors.

Alternatives A and D each would contain more total square feet of building floor area than would the Main Program: Alternative A would contain roughly 11.7 million sq. ft.; Alternative D would contain roughly 13.2 million sq. ft. (this does not include the 650,000 sq. ft. convention center); the Main Program would contain about 8.2 million sq. ft. It is likely that the Main

Program would have fewer high-rise buildings as well as less total floor space than would either Alternative A or Alternative D, and thus a smaller effect on cumulative fire protection in the downtown area. Some effect on cumulative fire service needs by the Main Program is likely, however.

8. SCHOOLS

The Proposed Main Program and YBC FEIR Alternatives

The impacts of the YBC FEIR alternatives on the Downtown Community College Center and the local schools are discussed on pp. 306-309 of the YBC FEIR.

The mix of residential and office development proposed under each YBC alternative and the Main Program could have an effect on the types of courses offered at the Downtown Community College Center. Courses now offered include courses on English as a Second Language, computer and word processor operation, hospitality services, and small business management. The Main Program would create more housing than any of the YBC FEIR alternatives and would be expected to create a greater demand for courses of interest to residents. The majority of the housing would be market-rate, and interests of the residents of the proposed market-rate housing would probably be similar to those of office workers. The Main Program would allow a greater level of development than any of the YBC FEIR alternatives and would generate more residents who would utilize the resources of the Downtown Center. The San Francisco Community College District is currently operating at capacity; however, resources within the District could be re-allocated in accordance with demand at the various facilities. Future budget conditions are uncertain at the present. Increased instruction could occur in meeting rooms and other spaces in private structures that are open to the public./11/

The additional market-rate dwelling units in the Main Program, compared to the YBC FEIR alternatives, would generate additional school-age students. However, fewer than 40 children would be expected to live in the 1,970 market-rate dwelling units proposed for the Main Program (based on YBC FEIR, pp. 307-308). Any students living in the YBC area could be accommodated by

the schools under the jurisdiction of the San Francisco Unified School District./12/ No school-age children would be expected to live in the subsidized elderly housing.

An estimated 20 pre-school children would require day care and pre-school facilities. Two facilities are located in the vicinity of YBC. St. Patrick's day care center is located at 366 Clementina St. immediately to the west of the YBC redevelopment area boundary. It has a capacity of 37 three- to six-year-olds at a cost of \$136 per month. There are currently no vacancies. The Love and Learn Day Care Center is located at 1419 Howard St. between 10th and 11th Streets. Capacity is 28 children from 2-1/2 to five years of age. Cost is \$172 per month. Open since October 1981, this center currently has room for ten children./13/

Both of these centers are open from 7:00 a.m. to 6:00 p.m. Neither provides care for infants. The closest infant facility is provided at the YWCA at 1855 Folsom St. for \$350 per month. There is a two year waiting list for infant care./13/ While some child care may be provided by residents of senior citizen housing who seek income and/or activities, it is likely that the senior citizen apartments in themselves would not provide adequate day care for the number of children the project may attract.

Variants

With Variant A, the Reduced-Housing/Increased-Office-and-Retail Variant for CB-1, the YBC area would generate about six fewer students than under the Main Program. With Variant B, the No-Housing Variant for CB-1, the YBC area would generate about 10 fewer students than under the Main Program. Variant C, the Housing Variant for CB-2 would generate about six additional students. Variant D, the Increased Housing/Reduced-Office Variant for SB-2 would add about eight students to the number generated under the Main Program.

9. PARKS AND RECREATION

The Proposed Main Program and YBC FEIR Alternatives

The impacts of the YBC FEIR alternatives on parks and recreation are discussed on pp. 309-311 of the YBC FEIR. The Main Program would provide more open space (a total of about 525,000 sq. ft.) than any of the YBC FEIR alternatives, except Alternative C (which would provide about one million sq. ft.). Housing provided under the Main Program would demand some public open space. This demand could be met by open space provided under the Main Program. In addition, office workers in YBC would demand some open space for eating lunch or strolling during breaks. The Main Program would meet this demand, as well. Since the proposed "gardens" on CB-2 and the open space on the roof of the convention center on CB-3 would be privately developed, the Recreation and Park Department would not be responsible for their maintenance.

Variants

The Housing Variant for CB-2 and the Increased-Housing/Reduced-Office Variant for EB-2 would be the only variants which would increase the demand by residents for open space over that demanded by the Main Program. For each variant these demands could be met by space provided under the rest of the Main Program.

10. MEDICAL SERVICES

The Proposed Main Program and YBC FEIR Alternatives

As discussed in the YBC FEIR on pp. 311 - 312, the alternatives would probably not have an effect on medical services in YBC.

With the Main Program, emergency services would continue to be provided by Mission Emergency at San Francisco General Hospital. A level of medical emergencies consistent with urban business and residential uses could be

expected and could be accommodated by the hospital. Most employees would be expected to have physicians near their place of residence. The elderly, who would occupy the subsidized housing, customarily have private doctors because they receive Medicare or other medical assistance and few would be expected to use the South of Market Health Center (YBC FEIR, p. 311). It is possible that additional medical services would be offered in the YBC area by physicians who might lease office space in or near the project.

Variants

To the extent that the variants would allow more or less office or residential development, there would be a corresponding change in the demand for medical services.

FOOTNOTES

/1/ J.E. Kenck, Manager, City Distribution Division, San Francisco Water Department, letter, December 29, 1981.

/2/ Based on sewage generation factors in Table B-1, Appendix B, p. 247.

/3/ Mervin Francies, Engineering Associate II, San Francisco Clean Water Program, letter, December 9, 1981.

/4/ Gerald Tyson, Commercial and Industrial Supervisor, Pacific Gas and Electric Company, letter, December 11, 1981.

/5/ David Gavrich, Assistant Manager for Solid Waste Management, Chief Administrative Office, Special Projects, City of San Francisco, telephone conversation, January 6, 1982.

/6/ Fiore Garbarino, Office Manager, Golden Gate Disposal Company, letter, December 4, 1981.

/7/ W.R. Warren, Manager, Engineering, Pacific Telephone, letter, December 22, 1981.

/8/ Sergeant Paul Libert, San Francisco Police Department, telephone communications, December 8, 1981, and December 30, 1981, and statistical information supplied December, 1981.

/9/ Joseph A. Sullivan, Chief, Support Services, San Francisco Fire Department, letter, December 14, 1981 and telephone communication, December 30, 1981. Confirmed, Chief Edward Murphy, Support Services, San Francisco Fire Department, telephone communication, March 3, 1982.

/10/ Chief Edward Murphy, Chief Support Services, San Francisco Fire Department, telephone communication, March 3, 1982.

/11/ Caroline Biesiadecki, Director, Downtown Center, San Francisco Community College District, telephone communications, September 19, 1977, December 28, 1981, and March 29, 1982.

/12/ Graciela Spreitz, Program Manager, Area One, San Francisco Unified School District, telephone communications, December 29 and 31, 1981.

/13/ Andy Scott, Childcare Facilities Developer, Children's Council for San Francisco, telephone communication, March 23, 1982.

F. TRANSPORTATION

1. SUMMARY OF THE TRANSPORTATION IMPACTS OF THE MAIN PROGRAM

The Main Program would generate roughly the same total number of trips (within 5%) as would Alternative A. However, differences in methodology between this Supplement and the 1978 YBC FEIR preclude a direct comparison between the effects of the Main Program and the YBC FEIR alternatives on specific modes of transportation (pedestrians, transit, vehicles). (See Appendix C, p. 251.)

Pedestrians

Congestion would occur on sidewalks and on the pedestrian plazas during peak hours when the convention center is in use. The increased pedestrian demand for crosswalk time would cause congestion at street corners. Restricted sidewalk widths could result from improper placement of sidewalk furniture and street trees. Sidewalk widening could be necessary.

Transit

Certain transit routes/agencies would approach or exceed capacity during peak hours due to cumulative ridership and YBC Main Program demand. In 1988, the projected build-out year for YBC, most Muni lines would experience "jammed" conditions before the addition of Main Program riders. Main Program riders

(not including those from the convention center) would comprise about 19% of the cumulative growth increase in peak-hour outbound ridership between 1982 and 1988 (cumulative growth caused by projects proposed for downtown San Francisco; a list of projects included in the calculation is in Appendix C, p. 251).

Street Traffic

Deteriorating levels of operation (to Level of Service D at some intersections) would be caused by increases in traffic from cumulative and YBC Main Program development. Increases in pedestrian volumes in crosswalks would cause further deterioration in intersection operation.

Parking

The daily parking demand which would be generated by the Main Program is estimated to be about 10,000 parking spaces. The Main Program has the potential to provide about 5,200 off-street parking spaces, thus creating an approximate 4,800-space net deficit for the Main Program. Current City Policy, as stated in the Revisions to the Transportation Element of the Master Plan Regarding Parking, is to discourage the addition of any parking within the Downtown Core automobile control area, which includes portions of YBC north of Folsom St.

Freight Loading And Local Circulation

A localized deficit of freight loading spaces would occur on five blocks under the Main Program. Tour/charter buses loading and unloading at CB-1 could cause congestion nearby. Project plans are currently not detailed enough to assess site-specific impacts. Garage, freight loading, and tour/charter bus access to off-street areas in YBC could adversely affect sidewalk and street operations in the area. Streets most affected would be Mission (transit preferential lanes), Howard (convention center entry drive), and Third and Fourth Sts.

2. THE PROPOSED MAIN PROGRAM, VARIANTS AND YBC FEIR ALTERNATIVES

The transportation impacts of the Main Program and the variants have been analyzed using an updated methodology (see Appendix C, p. 251, for an explanation of differences between this methodology and that used in the YBC FEIR) that is in conformance with current Department of City Planning Guidelines./1/ Where appropriate, revised trip generation and modal split data have been substituted for data used in the YBC FEIR.

Analysis of the Main Program in comparison with the alternatives in the YBC FEIR indicates the overall travel estimated to be generated by the Main Program would be equivalent (within about 5%) to the travel that was projected for Alternative A in the YBC FEIR. Table 13 shows a comparison of daily and peak-hour travel projections in person trip ends. A person trip end is a one way trip either to or from a location made by one person.

TABLE 13: TRAVEL PROJECTIONS FOR 1988: MAIN PROGRAM AND YBC FEIR ALTERNATIVES
PERSON TRIP ENDS (PTE)

Time	Main Program	YBC FEIR Alternatives			
		A	B	C	D
Wednesday (24 Hour)	203,200	198,000	120,600	39,300	170,400
Weekday Peak Hour (4:30 to 5:30 p.m.)	29,600	28,000	19,500	4,240	18,300

SOURCE: YBC FEIR, Appendix C, Tables C-4 to C-7, and TJKM.

Table 14, a comparison of total travel projections for the Main Program and the variants, shows that selection of any variants would have a negligible (no more than 6% above or below Main Program travel) effect on overall travel demand.

TABLE 14: TRAVEL PROJECTIONS FOR 1988: MAIN PROGRAM AND VARIANTS
PERSON TRIP ENDS (PTE)

Time	Main Program	Variants			
		A	B	C	D
Wednesday (24 Hour)	203,200	212,400	198,700	205,900	199,800
Weekday Peak Hour (4:30 to 5:30 p.m.)	29,600	31,300	29,300	29,900	28,500

SOURCE: TJKM.

Main Program Analysis

Travel Demand. As shown in Table 13, the Main Program would generate approximately 29,600 person trip ends (pte) in the p.m. peak hour. Approximately 12,000 pte would be generated by the convention center during the p.m. peak, as was assumed in the YBC FEIR (see p. 57, Appendix F). The remainder of the trips, approximately 17,600 pte, would be attributable to the other Main Program land uses.

Pedestrian Impacts. Third and Fourth Sts. north of Howard St. would be the principal pedestrian routes through the YBC area. East-west flows on Howard, Mission and Market Sts. would also be increased. Origins and destinations of pedestrian trips to and from the YBC area would be transit stations (Montgomery St. and Powell St. subway stations on Market, Transbay Terminal, CalTrans-Southern Pacific Terminal) and the Hotel, Retail and Financial Districts north of Market St. Figure 31, p. 319 of the YBC FEIR, illustrates future pedestrian flows in terms of magnitude and origin-destination patterns. Origins and destinations internal to the YBC area would differ slightly as the Main Program uses are similar but not identical to the uses

assumed for Alternative A in the YBC FEIR. The effects of a maximum attendance at the convention center (24,000 persons, expected to occur fewer than five times per year) have been included both in this Main Program analysis and in the YBC FEIR analysis for Alternatives A and B.

Table 15 shows the pedestrian levels of operation on sidewalks in YBC. As portions of the YBC area are currently vacant, under construction, or used for temporary parking, pedestrian flows on sidewalks in the YBC area are less than in adjacent areas north of Market St. Pedestrian flows are greatest during the peak hours with lower noon-hour percentages of travel than are found north of Market St. Table C-3 of Appendix C, p. 255, shows definitions and ranges of pedestrian operating conditions.

The YBC Main Program pedestrian travel would move p.m. peak-hour operating conditions into "crowded" (restricted selection of walking speed with a high probability of conflicts between pedestrians) conditions on the sidewalks near Market St. (assuming existing sidewalk width) on days that maximum attendance at the convention center would occur. These conditions would be similar to those on a sidewalk immediately in front of a large movie theatre when a movie is over and people leave the theatre.

The plans for Alternatives A and B in the YBC FEIR included mid-block pedestrian bridges crossing Howard St. and Mission St. between Third and Fourth Sts. aligned with the pedestrian concourse proposed for CB-1 and CB-2. For this analysis, mid-block at grade crossings rather than bridges have been assumed under the Main Program for either Mission or Howard Sts. If grade-separated pedestrian bridges were not provided, delays for both pedestrians and vehicles would result and accidents could occur involving pedestrians attempting to cross the street at mid-block. Both Mission and Howard Sts. are relatively wide, requiring a long time for pedestrians to cross. The block length is long enough that vehicles may attain speeds of about 30 miles per hour between intersections. These factors, and the uncommon occurrence of midblock crossings which make them unexpected for drivers, increase the potential for accidents, so that such crossings are to

be regarded as a serious safety problem for pedestrians. Approximately 1,300 to 1,600 pedestrians per peak 15-minute period during maximum attendance at the convention center were assumed to use proposed mid-block crossings of Howard and Mission Sts. Mid-block crossings would require new traffic signals to provide adequate safety. Projected operating conditions in the existing crossings of Howard and Mission Sts. at Third and Fourth Sts. would be at "crowded" levels under the post-YBC conditions with reservoir space requirements (sidewalk space holding pedestrians waiting to use the crosswalk) that would block travel on the sidewalks. The convention center would account for almost 40% of the Main Program pedestrian travel in the p.m. peak hour.

Existing sidewalk and crosswalk widths have been assumed. If future sidewalk widths are not larger, the conditions shown in Table 15 would be valid. Thus, future sidewalks could be widened and the installation of sidewalk furniture and accessory uses (street trees, benches) controlled so as to maximize the effective width of the sidewalk and improve operating conditions on the sidewalks over those shown in Table 15.

TABLE 15: PEAK 15-MINUTE PEDESTRIAN VOLUMES, INCLUDING MAXIMUM CONVENTION CENTER ATTENDANCE

Sidewalk	Section	Sidewalk Width (ft)		Volume**	Flow Rate***	Pedestrian Flow Regime
		Actual	Effective*			
1981						
Fourth St.	(Mission-Market)	9.0	6.0	270	3.0	Impeded
Fourth St.	(Howard-Mission)	9.5	7.0	250	2.4	Impeded
Third St.	(Mission-Market)	14.5	11.0	330	2.0	Unimpeded
Third St.	(Mission-Market)	10.5	8.0	270	2.3	Impeded
Howard St.	(Con.Cen.-Fourth)	19.0	8.0	30	0.3	Open
Howard St.	(Con.Cen.-Third)	16.0	11.0	30	0.2	Open
Mission St.	(Third-Fourth)	15.0	12.0	270	1.5	Unimpeded
1988 Base****						
Fourth St.	(Mission-Market)	9.0	6.0	750	8.3	Constrained
Fourth St.	(Howard-Mission)	9.5	7.0	790	7.5	Constrained
Third St.	(Mission-Market)	14.5	11.0	660	4.0	Impeded
Third St.	(Howard-Mission)	10.5	8.0	550	4.6	Impeded
Howard St.	(Con.Cen.-Fourth)	19.0	8.0	640	5.3	Impeded
Howard St.	(Con.Cen.-Third)	16.0	11.0	520	3.2	Impeded
Mission St.	(Third-Fourth)	15.0	12.0	450	2.5	Impeded
1988 Base + Main Program						
Fourth St.	(Mission-Market)	9.0	6.0	1,080	12.0	Crowded
Fourth St.	(Howard-Mission)	9.5	7.0	830	7.9	Crowded
Third St.	(Mission-Market)	14.5	11.0	1,080	6.6	Crowded
Third St.	(Howard-Mission)	10.5	8.0	930	7.8	Crowded
Howard St.	(Con.Cen.-Fourth)	19.0	8.0	880	7.3	Crowded
Howard St.	(Con.Cen.-Third)	16.0	11.0	830	5.0	Impeded
Mission St.	(Third-Fourth)	15.0	12.0	635	3.5	Impeded

* Effective widths take account of poles, planter boxes, people standing at store windows, etc.

** Pedestrians per 15 minutes.

*** Pedestrians per minute per foot of effective sidewalk width. See Appendix C, Table C-3 for definitions and volume criteria. Based upon manual counts made by TJKM, traffic engineers, Tuesday and Thursday, October 27 and 29, 1981, between 7:00 and 9:00 a.m. and Wednesday and Thursday, November 4 and 5, 1981, between 4:00 and 6:00 p.m.

**** Includes the convention center, assumed on a day of peak occupancy (24,000 persons). It is recognized that this attendance level would occur only a few (less than five) times per year.

SOURCE: TJKM.

Transit Impacts. An analysis was made of the cumulative transit impacts due to development in Downtown San Francisco as set forth in the Department of City Planning Guidelines (see Appendix C, p. 251). The analysis was conducted on a system level which considered only the lines or blocks of lines that serve YBC, and not the entire transit system.

Table 16 shows the projected ridership for 1988 conditions on all transit agencies. The Main Program would generate approximately 2,480 outbound p.m. peak-hour Muni trips. As shown in Table 16, the increase due to the Main Program during the p.m. peak hour would represent 19% of the increase in cumulative development demand in downtown San Francisco (projects included in the cumulative demand calculation are listed in Appendix C, p. 257).

Analysis of the transit data indicates that most of the Muni lines analyzed would be in jammed conditions for the 1988 cumulative demand (including the convention center), exclusive of any other demand from YBC, unless the capacity of the system were increased. Capacity data are shown in Table C-6, Appendix C, p. 258. This would also be the case for the BART, A-C Transit, Golden Gate Transit and SamTrans routes. As the cumulative demand increases, the period of the rush hours during which transit vehicles are loaded to capacity will increase, thus extending the rush hour as long as transit capacity is available.

All of the transit systems mentioned have five-year plans to guide future system growth. Currently, each of the agencies has unused capacity on some of its lines for the peak hour. Therefore, until the projected ridership begins to become evident on the transit routes, extensive changes will not be warranted. The transit agencies have made system-wide projections of demand to aid in planning capital costs budgets for service improvements. Not all of the cumulative development analyzed in this report has been incorporated in the transit agency projections. Therefore, the planned service increases in the next five-year period may not be adequate to meet the projected demand, particularly the demand from the Main Program, which would occur outside the

TABLE 16: P.M. PEAK-HOUR OUTBOUND TRANSIT RIDERSHIP

Agency*	1981 Ridership	1988 Base*** Ridership	Main Program Ridership	1988 Base + Main Program	
				Ridership	Percent of Inc.**
Muni	28,500	40,200	2,480 *	42,600	19%
BART					
Transbay	13,000	17,300	870	18,200	18%
Westbay	6,000	8,200	520	8,700	21%
A-C Transit	9,100	12,700	710	13,400	17%
SamTrans	1,000	1,600	100	1,700	15%
CalTrans-Southern Pacific	4,600	6,400	410	6,800	20%
Golden Gate					
Motor Coach	5,000	6,900	360	7,300	17%
Ferry	1,100	1,600	80	1,700	13%

* See Appendix C, Table C-6, for routes included in projections.

** The Main Program ridership as a percentage of the total increase in ridership due to 1988 Base cumulative development, including YBC. Cumulative development included in the calculation is listed in Appendix C, p. 257.

*** 1988 Base includes existing ridership, riders from cumulative development outside YBC and riders from the convention center, but not from the rest of the Main Program.

NOTE: See Table C-2, Appendix C, p. 253 for peak-hour modal split.

SOURCE: TJKM

current five-year cycle (as would some cumulative demand). Several of the systems are constrained by physical limits that will prevent significant service increases from occurring in the next five years. Appendix D, p. 261, contains a discussion of the capacity restraints on the transit agencies.

Mixed-Vehicle Impacts. Seven intersections were analyzed to determine the effects of the vehicular traffic from the Main Program. Traffic assignment was based upon possible travel corridors to seven geographic subdivisions of the regional area. (See Table C-2, Appendix C, p. 253.) The seven intersections chosen for the updated analysis were in areas through which most of the traffic from the Main Program would pass and hence have the greatest potential effect on level of service. There would also be localized impacts at points of entry to parking facilities from the main streets in YBC.

Table 17 shows the impact of Main-Program-related traffic at seven intersections in YBC. The 1988 base values include traffic increases from cumulative development (Appendix C, p. 257). The intersection of Fourth and Howard Sts. is currently in Level of Service D conditions because of construction lane blockage associated with outgoing construction. Without the lane blocked, the intersection would operate in Level of Service B. Assuming that intersection capacity would remain at 1981 levels, the seven intersections would be brought to no worse than Level of Service C operation during the peak hours by the cumulative development traffic. Addition of the Main Program traffic would change the Levels of Service from Level C to D conditions during the peak hour at four of the intersections. Increases in pedestrian activity in YBC would cause more delay to turning vehicles at intersections in the YBC vicinity.

An effect of increased congestion on the above streets would be a redistribution of travel patterns to less traveled routes and potentially a shift from automobile to transit or paratransit if any transit capacity were available.

Parking Impacts. The daily parking demand which would be generated by the Main Program is estimated to be about 10,000 parking spaces. The parking demand has been calculated based on the numbers of vehicle trips projected for work and non-work purposes. Residential travel has been included in the vehicle trip calculation as it is part of the overall trip generation. The

TABLE 17: PROJECTED PEAK-HOUR INTERSECTION VOLUME-TO-CAPACITY (V/C) RATIOS

Intersection	1981		1988 Base**		1988 Base+Main Program	
	V/C	LOS*	V/C	LOS*	V/C	LOS*
<u>P.M. Peak Hour</u>						
Fourth and Market	0.57	A	0.64	B	0.75	C
Fourth and Mission	0.65	B	0.78	C	0.83	D
Fourth and Howard	0.85***	D	0.74	C	0.86	D
Fourth and Harrison	0.65	B	0.79	C	0.87	D
<u>A.M. Peak Hour</u>						
Third and Mission	0.68	B	0.74	C	0.79	C
Third and Market	0.58	A	0.64	B	0.66	B
Fourth and Bryant	0.55	A	0.71	C	0.84	D

* LOS - Level of Service

** 1988 Base includes existing traffic, traffic from cumulative development outside YBC and traffic from the convention center, but not from the rest of the Main Program.

*** Some restriction at intersection due to lane closure for construction. 1988 values assume no closure.

See Appendix C, Table C-5, for definition of Levels of Service and Table C-4 for lane capacities at Level of Service.

Based upon manual intersection counts made by TJKM in December, 1981.

SOURCE: TJKM

average percentage of daily non-work trips for the Main Program has been estimated to be 48%. Service travel and goods movement would account for approximately 2% of the daily travel. The average length of stay for non-work trips is estimated to be two hours./2/

As the uses in the Main Program would generate visitor and employee travel outside of the normal workday (8:00 a.m. to 5:00 p.m.), the daytime percentage of trips for each purpose was estimated. Approximately 85% of the work trips were assumed to occur during the daytime hours and 70% of the visitor trips were assumed to occur during the daytime hours. All of the service trips were assumed to occur between the hours of 8:00 a.m. and 5:00 p.m. For estimation of the work or long-term parking demand, all of the vehicle trips for work

purposes were assumed to generate demand for one parking space per trip or about 7,500 spaces for the Main Program. The non-work or short-term parking demand was calculated by dividing the non-work trips by a turnover factor based upon the average length of stay. The turnover factor was calculated by dividing a 9-hour working day (8:00 a.m. - 5:00 p.m.) by the average length of stay of two hours to give a factor of 4.5. The average short-term (non-work) parking demand was calculated to be about 2,500 spaces per hour for the Main Program. The total parking demand, therefore, would be the work demand (7,500 spaces) plus the short-term non-work demand (2,480 spaces), or about 9,980 parking spaces.

The Main Program has the potential to provide approximately 5,220 off-street parking spaces, thus creating an approximate 4,760 space net deficit for the Main Program.^{/3/} If all of the new spaces were short-term only, the short-term supply for the project would exceed the demand by 2,740 spaces.

The parking demand from each of the buildings analyzed as part of the cumulative future development was calculated using a similar methodology and summed. Long-term demand from the cumulative projects outside YBC (see list in Appendix C, p. 257) would be 14,800 spaces per day and average short-term demand would be 2,530 spaces per hour (assuming a 9-hour day, 8:00 a.m. to 5:00 p.m.). The Main Program demand (7,500 spaces long-term, 2,480 spaces short-term) would represent 34% of the total long-term demand from the cumulative development (including YBC) and 49% of the total short-term demand.

As the Main Program incorporates residential units, the Redevelopment Plan requirements of one off-street parking space per four market-rate dwelling units and one parking space per 20 subsidized dwelling units would have to be satisfied.^{/4/} Thus, 510 spaces would be required for the residential portions of the Main Program.

The Main Program would have approximately 3,250 off-street public parking spaces in addition to those proposed in the YBC FEIR. The additional parking would be located in blocks CB-1 (950 spaces), CB-2 (1,500 spaces) and SB-2 (800 spaces). Two of the alternatives in the YBC FEIR proposed public parking

facilities that have not been included in the Main Program. Alternative A showed 760 spaces in SB-3 and Alternative B showed 1,250 spaces in EB-3 that are not shown in the Main Program. Consequently the additional public parking in the Main Program could be considered to be either 2,490 spaces or 2,000 spaces depending upon which Alternative is used for comparison. The additional public parking would be in compliance with the Redevelopment Plan, but would be in excess of the amount normally allowed under City policy. The Main Program parking would be required to conform to the Redevelopment Plan only.

Current City policy, as stated in the Revisions to the Transportation Element of the Master Plan Regarding Parking, is to "Discourage the addition of new long-term parking spaces in and around downtown, limit the amount of new spaces to that which cannot reasonably be accommodated by transit and locate long-term parking facilities in areas peripheral to the downtown commercial district."/5/ The Master Plan Parking Policy has also stated the need to "encourage short-term use of existing parking facilities within and adjacent to the downtown core by converting all-day commuter parking to short-term parking in areas of high demand or to car/van pool parking where short-term parking demands are low."/6/ The Master Plan Parking Policy has the potential for removing any basis of comparison of the existing supply/demand ratio with future parking demands. The potential would exist to displace long-term parkers currently using parking facilities in the downtown core. The long-term demand from the cumulative development and the Main Program would be added to unmet demand for any long-term parkers displaced by implementation of the Master Plan Parking Policy.

Imbalances in long-term parking demand and potential supply could encourage the use of car pools and van pools, or the creation of satellite (intercept) parking facilities in outlying non-residential areas, with shuttle or expanded Muni service to the downtown area, or increased use of transit directly. Peninsula residents, for example, could find CalTrans-Southern Pacific commuter trains more attractive if they could get no closer to downtown with their cars than the train terminal at Fourth and Townsend Sts. All transit options would add to the burdens of the regional and local transit system, particularly Muni.

Truck Deliveries and Loading. The Main Program uses, exclusive of the convention center, would be required to provide off-street service vehicle parking in compliance with the Redevelopment Plan. The Redevelopment Plan would require the provision of about 50 off-street loading spaces to serve the Main Program uses, exclusive of the convention center./7/

Table 18 shows an analysis of required loading space in comparison with average hourly service vehicle demands based upon data published in Center City Circulation Program: Pedestrian Circulation and Goods Movement by the San Francisco Department of City Planning./8/ The Main Program (excluding the convention center) would generate approximately 1,250 service vehicle stops per day. At 2 vehicle trip ends per stop, this is equivalent to about 2,500 vehicle trip ends per day; these have been included in the total travel generated by the Main Program and represent approximately 2% of the total non-convention center travel. Average hourly loading space requirements are given in terms of spaces per hour per 10,000 gross square feet of building space. Aggregate demand for the Main Program would be about 56 spaces per hour. On a block-by-block basis, the calculated demand is projected to exceed the required number of loading spaces for five blocks (CB-2, CB-3, EB-1, EB-2, and WB-2).

Loading docks have been constructed on CB-3 for the convention center. Constructing additional loading facilities for uses on the roof of the convention center is likely to be difficult, if possible. Additional loading facilities on CB-3 would all require conveyors or elevators to transfer goods from street-level to the roof of the convention center.

Localized Street Impacts

The parking proposed for CB-1, CB-2 and SB-2 would have an impact on operations on streets to which the parking facilities would have access. As discussed in the First YBC EIR Supplement on p. 61, garage access on CB-1 onto Mission St. would have an impact on street and transit operations. Vehicles attempting to turn left into or out of the garage would disrupt traffic operations in the transit preferential (diamond) lanes and the other travel

TABLE 18: MAIN PROGRAM OFF-STREET LOADING SPACES

<u>YBC Block</u>	<u>Redevelopment Plan Requirements</u>	<u>Calculated Demand</u>
CB-1	15	14
CB-2	5	10
CB-3	4	8
EB-1	5	6
EB-2	6	8
EB-3	4	4
WB-1	-	-
WB-2	2	3
WB-3	0	-
SB-1	1	-
SB-2	5	2
SB-3	5	1
SB-4	0	-
	<u>50</u>	<u>56</u>

SOURCE: Requirements: Table 4, Yerba Buena Center Redevelopment Plan, Original Ordinance 98-66, April 25, 1966.

Calculated Demand: Table 4, Center City Pedestrian Circulation and Crowds Movement Study, September 1980.

lanes on Mission St. which would cause operating conditions at nearby intersections to deteriorate from the levels shown in Table 17, p. 159.

The same considerations would be applicable to the parking use on CB-2. Garage access from CB-2 onto Mission would interfere with Muni diamond lane operations, and access onto Howard St. would affect the proposed mid-block pedestrian crossing. Access onto Third or Fourth Sts. from garages on CB-1 and CB-2 would be preferable from a traffic-operations standpoint.

The Main Program would have hotel uses on CB-1, 700 rooms (Arcon-Pacific) on Third St. and an additional 1,500 rooms elsewhere on the block. Based upon data presented in the Final EIR for Tower No. 2 of the Hilton Hotel, the total

hotel rooms could have the potential to generate approximately 100 tour/charter buses per day./9/ Tour bus loading and queueing and passenger loading, if not provided off-street on CB-1, would affect Third and Fourth Sts. and possibly Mission St. Tour and charter bus activity at the convention center has been previously discussed in the YBC FEIR (pp. 338a, 342 and 343). The location of the convention center bus/taxi driveway in relation to the one-way westbound direction of travel on Howard St. would cause loading/unloading passengers to cross the driveway to and from the main entrance. It would, however, eliminate the need for buses to make wide turns across Howard St. to reverse direction into the entry drive.

Construction Impacts. The construction traffic impacts that would result from the Main Program would be similar in magnitude and timing to those of Alternatives A and B in the YBC FEIR (see pp. 346 and 347 for a description of construction impacts).

Variants

From a transportation standpoint, the impact of three of the four variants would be approximately equivalent to the Main Program. Table 14, p. 152, shows that Variants B, C and D would produce levels of travel within 2% of the Main Program for both daily and peak period travel. This same variation carries over to the impact analysis: parking demand, transit riderships and intersection traffic increases would be within 2% of the projections for the Main Program. This variation for Variants B, C and D would be statistically insignificant.

Variant A, the Reduced-Housing/Increased-Office-and-Retail Variant, would generate approximately 6% more travel for all of YBC than would the Main Program. Transportation impacts would be proportionately increased over the Main Program impacts. As a result of the added retail and office space and reduced residential space on CB-1, transportation impacts would be increased in the vicinity of CB-1. One of the projected uses of the retail space would be a department store. Under Variant A, the intensity of use on CB-1 would generate approximately 20% more trips from CB-1 than would the uses proposed under Main Program.

A major department store in CB-1 would affect transit, traffic and parking conditions in the northern part of the YBC area. The peaking characteristics of travel to and from major retail uses differ from those assumed in the rest of YBC as retail-generated peak travel occurs outside of commute periods. The proximity of the Fifth and Mission public parking garages and accessory parking proposed for CB-1 and CB-2 (2,450 spaces) would tend to encourage a direct interaction between the parking facilities and the retail uses. The peaking characteristics and proximity of parking could cause an increase in auto use in the CB-1 area in excess of that assumed in the Main Program. Auto use could increase particularly on days that convention center attendance was not at the maximum.

FOOTNOTES

/1/ Guidelines for Environmental Impact Review, Transportation Impacts, San Francisco Department of City Planning, October 1980.

/2/ The parking characteristics data are from a federally sponsored research document: National Cooperative Highway Research Program (NCHRP), 1969, Urban Travel Patterns for Hospitals, Universities, Office Buildings, and Capitols, Rept. No. 62.

/3/ Yerba Buena Center Redevelopment Plan, City and County of San Francisco, 1979, Table 3.

/4/ Ibid.

/5/ Revisions to the Transportation Element of the Master Plan Regarding Parking, Resolution 7647, San Francisco City Planning Commission, 20 January 1977, Policy 4, pg. 4.

/6/ Ibid., Policy 2, pg. 3.

/7/ YBC Redevelopment Plan, City and County of San Francisco, 1979, Table 4.

/8/ Center City Circulation Program: Pedestrian Circulation and Goods Movement, Working Papers 1, 2, and 3 and Final Report, San Francisco Department of City Planning, 1980.

/9/ Final EIR San Francisco Hilton Hotel Tower No. 2, EE 79.257, San Francisco Department of City Planning, Certified January 29, 1981.

G. CLIMATE AND AIR QUALITY

1. CHANGES IN LOCAL CLIMATE

Changes in local wind patterns would occur in the vicinity of YBC under any of the YBC FEIR alternatives or under the Main Program. These changes are described generally on pp. 356-357 in the YBC FEIR. Changes in local surface wind patterns would result from the effects of buildings on wind flow. The interactions of local wind patterns with high-rise structures are complex; without actual building layouts and designs, estimated effects can only be speculative. Building height, shape, bulk, width, orientation, surface treatment, and location with respect to other structures affect surface-level winds. Generally, taller buildings result in higher wind speeds and more turbulent wind flows than lower ones. Buildings located in close proximity to one another can channel the wind flow and can result in gusty winds of variable directions, especially at building corners.

The tallest buildings in YBC under the Main Program would be on CB-1, where some buildings may be as tall as the Redevelopment Plan allows, 400 ft. On this block, balconies at the upper levels of building towers on Fourth or Market Sts. would be exposed to gusty winds. Any rooftop areas of structures near high-rise towers would also be very windy, and probably not suitable for outdoor use. Smooth building facades on the tallest buildings on CB-1 could direct winds down the building faces to ground level./1/

It is possible that the covered pedestrian plaza proposed to extend from Market St. to Mission St. through CB-1 would be breezy. The covered plaza would connect the naturally occurring high- and low-pressure areas formed up- and down-wind of the array of buildings on the block, which could result in a constant breeze through the plaza. Another area of possible concern is the open space proposed for the roof the convention center on CB-3. Although likely to be partially sheltered by surrounding buildings, it would be elevated above street level, and thus exposed to higher winds than those that would occur at street level./1/

Because the sun generally shines from the south and west, seldom from the east (due to frequent morning fog), and never directly from the north (see YBC FEIR, p. 357a), areas immediately to the north and east of high-rises on CB-1 would be shadowed to some extent by CB-1 buildings most of the year.

Open plazas are being considered for two areas on CB-1: at the Market St. entrance to the block, and at Mission St., east of St. Patrick's Church. A building 400 ft. tall (the maximum allowed within the height limit for the block) would shade the proposed Market St. plaza every afternoon all year round if placed at the northwestern portion of CB-1 on Market St. (within the Redevelopment Project Area boundaries). A building placed here, however, would not shade the Mission St. plaza until late afternoon (about 6:00 p.m.) in the late spring and early summer, near the time of the summer solstice (June 22). If this 400-ft. building were moved further south along the Fourth St. side of the block to the GSA site at 49 Fourth St., it would shade the Market St. plaza at noon in the winter (near the time of the winter solstice on December 22), but would not shade the plaza at noon or in afternoons during the rest of the year. However, this building would shade the Mission St. plaza from mid-afternoon (roughly 2:30 p.m.) to sunset in the spring and fall (near the times of the equinoxes on March 21 and September 23), and from the early afternoon (about 1:30 p.m.) to sunset in the summer. If the 400-ft. building were moved further south (and east) to the corner of Fourth and Mission Sts., it would not shade the Market St. plaza in the afternoon at any time of the year. It would, however, shade the Mission St. plaza almost all afternoon in the winter, most of the afternoon (from early afternoon until just before sunset) in the spring and fall, and in the early afternoon in the summer. Furthermore, a building placed on this corner would shade some open space on CB-2 during the afternoon in the summer (see pp. 64-64 of the First YBC EIR Supplement).

Buildings placed near the northeastern portion (within the Redevelopment Project Area at Third St.) of CB-1 would not shade either of the plazas under consideration for CB-1 or any part of CB-2 during afternoons at any time of the year. They would, however, shade Market St. during the afternoons all year long, and EB-1 and EB-2 on summer afternoons.

The First YBC EIR Supplement (p. 65) contains a discussion of possible shadowing effects of CB-1 buildings on open space on CB-2. Shading of CB-2 would occur in the afternoons near the time of the summer solstice (June 22) if a building 200 ft. or taller were placed near the corner of Mission and Fourth Sts. Although building heights on CB-2 itself would be limited to 80 ft. (RFQ, p. 21), any building placed along CB-2's western edge could shade some of CB-2's open area in the afternoons part of the year.

2. CONSTRUCTION EFFECTS

Earthmoving, construction activities, and particularly excavation for new foundations would affect local air quality by creating suspended particulates (dust). In contrast to gaseous pollutants and to small-size particulates from combustion, a large percentage of the particulates from construction settles out of the atmosphere rapidly with increasing distance from the source and generally does not penetrate to the lungs. It has been estimated that the fraction of small-sized construction particulate (less than 30 microns in diameter) which may remain suspended indefinitely, and is a health hazard, is generated at the rate of 1.2 tons per acre per month of activity (U.S. Environmental Protection Agency (U.S. EPA), August 1977, Compilation of Air Pollutant Emission Factors, AP-42, Third Edition)/2/. This would include emissions from excavation and earthmoving, traffic on unpaved surfaces, wind erosion and construction of structures. Levels of construction activity and their impacts are discussed in the YBC FEIR, pp. 357c-359. Impacts of the Main Program and variants would be similar to those of Alternative A.

The use of asphalt for road paving (for curb cuts) would generate hydrocarbon emissions. Regulation 8, Rule 15 of the BAAQMD prohibits the use of rapid-cure cutback asphalt; any cutback asphalt used during April through October, except when the temperature is below 50 degrees; and emulsified asphalt containing petroleum solvents in excess of 3% by volume.

3. LONG-TERM OPERATION EFFECTS

The Proposed Main Program and YBC FEIR Alternatives

Long-term air quality impacts would result primarily from increased vehicular emissions. Stationary source emissions (from combustion of fuels for space and water heating) could be expected to range approximately from 1% to 20% of the mobile source emissions./3/ Traffic generated by the Main Program in 1988 would produce about 10.9 tons per day of carbon monoxide (CO), 1.0 ton per day of hydrocarbons (HC), 1.2 tons per day of nitrogen oxides (NOx), 0.1 tons per day of sulfur oxides (SOx) and 1.6 tons per day of total suspended particulate (TSP or dust). A direct comparison of these amounts with those generated by the YBC FEIR alternatives cannot be made, because of differences in transportation methodology (these differences are explained in Appendix C, p. 251). It is likely, however, that for all five pollutants, the YBC FEIR alternatives and Main Program ranked in order of decreasing amounts of pollutant generation would be: the Main Program, Alternative A, Alternative D, Alternative B and Alternative C (based on person trip projections shown in Table 13, p. 151).

Table 19 shows worst-case (poor dispersion) roadside carbon monoxide (CO) concentrations in parts per million (ppm) at seven intersections in YBC for 1981 Existing Case, 1988 Base Case (conditions after growth in the area, but without the project) and 1988 Main Program Case. The 1988 YBC FEIR alternatives are not shown, because differences in transportation assumptions and methodology used in the YBC FEIR and in this Supplement (see Appendix C, p. 251) preclude a meaningful comparison. CO concentrations due to implementation of the YBC FEIR alternatives are shown for the same intersections in Table 19, below, as on p. 383 of the YBC FEIR; one-hour concentrations there are typically about 60% higher than one-hour concentrations in Table 19 and eight-hour concentrations about 10% higher. In reality, it is likely that a ranking of the YBC FEIR alternatives and the Main Program in order of increasing local CO concentrations would be similar to that for total pollutants generated, that is: Alternative C, Alternative B, the Main Program, Alternative A and Alternative D.

TABLE 19: ESTIMATED AND PROJECTED WORST-CASE (POOR DISPERSION) ROADSIDE CO CONCENTRATIONS* (ppm)**: MAIN PROGRAM

<u>Location</u>	<u>Averaging Time</u>	<u>1981 Existing</u>	<u>1988 Base Case+</u>	<u>1988 Base plus Main Program</u>
Harrison & Fourth	1-hour	20.3	13.8	16.5
	8-hour	10.2***	6.8	7.1
Folsom & Third	1-hour	21.2	14.3	15.6
	8-hour	10.3***	6.8	7.1
Folsom & Fourth	1-hour	20.1	14.4	15.8
	8-hour	10.3***	6.7	7.0
Howard & Third	1-hour	20.8	13.8	14.6
	8-hour	10.0***	6.5	6.7
Howard & Fourth	1-hour	21.0	18.5	21.1
	8-hour	10.3***	7.2	7.8
Mission & Third	1-hour	24.5	16.0	16.9
	8-hour	10.9***	7.0	7.3
Mission & Fourth	1-hour	17.9	11.8	12.5
	8-hour	9.3***	6.0	6.2

* Roadway-generated concentrations were added to "background" concentrations. Background concentrations were assumed to be 12.8 ppm for one hour, and 7.9 ppm for 8 hours in 1981; 7.9 ppm for one hour and 4.9 ppm for 8 hours in 1988.

** ppm: parts per million

*** Exceeds the applicable standards: 35 ppm for one hour and 9 ppm for 8 hours.

+ 1988 Base includes existing traffic, traffic from cumulative development outside YBC and traffic from the convention center, but not from the rest of the Main Program.

NOTE: Eight-hour concentrations exceeding the standard in the 1981 Existing Case occur on the order of one to ten times per year.

SOURCE: Environmental Science Associates, Inc., using Bay Area Air Pollution Control District (BAAPCD), 1975, Guidelines for Air Quality Impact Analysis of Projects, Information Bulletin, updated with BAAQMD, 1980, EMFAC-6 Emission Factors, and based on traffic data from TJKM.

The 1978 YBC FEIR and 1978 YBC EIS, prepared by HUD, which was largely drawn from the YBC FEIR, contained an air quality analysis which assumed that fuel oil, rather than natural gas, would be used for space heating in YBC buildings. This assumption was based on the belief that the "natural gas crisis," in existence at the time, would continue or worsen by 1988, making fuel oil use necessary. This has turned out not to be the case, and it is planned that natural gas be used for space heating under the Main Program. The fuel oil assumption used in the 1978 air quality analysis resulted in projections of sulfur dioxide concentrations in YBC exceeding federal standards, and possibly being a health hazard (YBC FEIR, pp. 371 - 377a). In addition, vehicle emission factors available in 1978 underestimated the subsequent beneficial effects of state and federal vehicle emissions control requirements. Air quality projections resulting from both of these assumptions now (1982) appear to be overestimations of pollutant concentrations likely to occur in YBC should any of the YBC FEIR alternatives be implemented.

The 1988 Base Case CO concentrations would be lower than existing concentrations because of the projected effects of government-mandated vehicular-emissions controls (BAAQMD, 1980, EMFAC-6 Vehicular Emission Factors). Increases in traffic, and thus the number of pollutant sources, in YBC due to the implementation of the Main Program by 1988 would be compensated for by the effects of vehicle-emission controls. CO concentrations following project implementation would be greater, however, than those for the 1988 Base Case, which would be below 1981 concentrations. The greatest CO contributions made by the Main Program would be at the intersections of Harrison and Fourth Sts. and Howard and Fourth Sts. At these intersections the one-hour Main Program contribution would be 2.7 ppm and 2.6 ppm, respectively; these are increases of about 20% and 14% over the Base Case concentrations. Neither federal nor state standards for CO would be exceeded in YBC due to implementation of the Main Program. The maximum eight-hour CO concentration would not be expected to be more than 90% of the standard.

Subregional CO and particulate emissions have occasionally exceeded standards in the last three years (see Table E-1, Appendix E, p. 263). The 1979 Bay Area Air Quality Plan (BAAQMD, ABAG, MTC) states that ozone pollution will continue to be a regional problem in the future, that CO and particulate pollution will continue to be problems on a local scale, and that certain pollution control strategies will be necessary to attain and maintain the standards for these pollutants as required by law. The Main Program would not be expected to have a measurable impact on citywide or regional air-pollution concentrations, or on the frequency of violations, and thus would not directly conflict with these strategies. A detailed study of the expected effects of YBC on regional air quality (YBC FEIR, pp. 382-385a) projected emissions from the YBC FEIR alternatives to have a statistically insignificant effect on ozone concentrations in the South Bay and other areas downwind of the site. The Main Program would, however, generate additional pollutant emissions within San Francisco.

The garages proposed for CB-1, CB-2, and SB-2 ,if underground, would be subject to CO build-up from vehicle exhaust if there were insufficient ventilation. Without detailed garage plans, CO concentrations and the amount of ventilation necessary to disperse these concentrations are difficult to project. All public and accessory parking garages proposed for the Main Program would have ventilation systems in compliance with the San Francisco Building Code (Sections 1005.1.A and 5130).

Variants

Table 20 compares roadside CO concentrations resulting from implementing the Main Program with those resulting from implementing any of the variants. For ease of analysis, it is assumed that no two variants would occur at the same time, and that all YBC blocks not containing a variant would remain the same as under the Main Program.

Variant A, the Reduced-Housing/Increased-Office-and-Retail Variant for CB-1, is the only variant that would measurably increase local CO concentrations over those for the Main Program. This is because Variant A replaces 300

TABLE 20: PROJECTED WORST-CASE (POOR DISPERSION) ROADSIDE CO CONCENTRATIONS* (ppm)**: MAIN PROGRAM AND VARIANTS

Location	Averaging Time	1988 Base Case and Variants +				1988 Base Case plus Main Program
		A	B	C	D	
Harrison & Fourth	1-hour	16.6	16.4	16.5	16.3	16.5
	8-hour	7.1	7.1	7.1	7.0	7.1
Folsom & Third	1-hour	15.7	15.6	15.6	15.5	15.6
	8-hour	7.2	7.1	7.1	7.1	7.1
Folsom & Fourth	1-hour	15.9	15.7	15.8	15.8	15.8
	8-hour	7.1	7.0	7.0	7.0	7.0
Howard & Third	1-hour	14.7	14.6	14.6	14.6	14.6
	8-hour	6.7	6.7	6.7	6.7	6.7
Howard & Fourth	1-hour	21.3	20.8	21.1	20.7	21.1
	8-hour	7.8	7.7	7.8	7.7	7.8
Mission & Third	1-hour	16.9	16.8	16.9	16.8	16.9
	8-hour	7.3	7.3	7.3	7.3	7.3
Mission & Fourth	1-hour	12.5	12.5	12.5	12.6	12.5
	8-hour	6.2	6.2	6.2	6.2	6.2

* Roadway-generated concentrations were added to "background" concentrations. Background concentrations were assumed to be 12.8 ppm for one hour, and 7.9 ppm for 8 hours in 1981; 7.9 ppm for one hour and 4.9 ppm for 8 hours in 1988.

** ppm: parts per million

- + Variant A: the Reduced-Housing/Increased-Office-and-Retail Variant for CB-1
 Variant B: the No-Housing Variant for CB-1
 Variant C: the Housing Variant for CB-2
 Variant D: the Increased-Housing/Reduced-Office Variant for EB-2

NOTE: None of the concentrations above exceeds the applicable standards: 35 ppm for one hour and 9 ppm for eight hours.

SOURCE: Environmental Science Associates, Inc., using Bay Area Air Pollution Control District (BAAPCD), 1975, Guidelines for Air Quality Impact Analysis of Project. Information Bulletin, updated with BAAQMD, 1980, EMFAC-6 Emission Factors, and based on traffic data from TJKM.

dwelling units with 400,000 sq. ft. of office space and an additional 90,000 sq. ft. of retail commercial space, both of which would generate more traffic per square foot than would housing. Variant C, the Housing Variant for CB-2, would generate more traffic than would the Main Program, but resulting increases in local CO concentrations would be less than 0.1 ppm (for both one-hour and eight-hour averaging periods). Implementing any of the variants would result in no more than 0.4 ppm change from those under the Main Program. No standards would be exceeded, and effects would be similar to those discussed under the Main Program.

FOOTNOTES

/1/ Donald Ballanti, Certified Consulting Meteorologist, December, 1981, "Wind Climate and Comfort Analysis of the Proposed Yerba Buena Center."

/2/ The silt content of the soil, vehicular traffic, microclimate, and activities mix of the project from which this emission factor was derived are not representative of the proposed project, and may be 5 to 20 times higher than the actual emission factors at YBC construction sites. However, violations of the State standard for total suspended particulates would probably still occur on and near these sites.

/3/ Should fuel oil, rather than natural gas, be burned for heating, sulfur oxide (SOx) and total suspended particulates (TSP) emissions could equal or be greater than mobile source emissions for the same pollutant, depending on the sulfur content of the fuel used.

H. NOISE

1. CONSTRUCTION NOISE

The Proposed Main Program and YBC FEIR Alternatives

Construction activities would temporarily increase noise levels near construction sites in YBC. Without information on specific construction equipment to be used at specific sites, or on the schedule of construction activities, direct comparisons between the YBC FEIR alternatives and the Main Program cannot be made. The range of construction noise and its various contributing factors are discussed on pp. 394-395 of the YBC FEIR. This general discussion would apply to the Main Program. Table 21 shows average

noise levels expected during construction. The existing residences nearest Main Program construction sites would be the Woolf House apartments, about 170 ft. from the nearest construction sites on CB-3. Excavation and finishing noise levels from one of these nearest sites could reach 78 dBA at Woolf House's exterior wall. Should construction occur at three sites all 170 ft. from Woolf House, exterior noise levels could reach 82 dBA. Indoor noise levels in this case could reach 60-65 dBA, enough to interfere with speech and cause annoyance. San Francisco Noise Ordinance 274-72, "Regulation of Noise," Section 2907(b), adopted in 1973, requires that all powered construction equipment, except impact tools, not emit more than 80 dBA measured at 100 ft. from the source. A special permit from the Department of Public Works is required for nighttime construction.

TABLE 21: TYPICAL COMMERCIAL/INDUSTRIAL CONSTRUCTION NOISE LEVELS AT 50 FEET

<u>Construction Phase</u>	<u>Average Noise Level* (Leq)</u>
Ground Clearing	84 dBA
Excavation	89
Foundations	78
Erection	85
Finishing	89

* These noise levels would be reduced to comply with the Noise Ordinance by the implementation of the mitigation measures in the YBC FEIR (see pp. 490 - 491)

SOURCE: Bolt, Beranek, and Newman, December 31, 1971, Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances, U.S. Environmental Protection Agency, p. 20.

2. LONG-TERM NOISE IMPACTS AND LAND USE COMPATIBILITY

The Proposed Main Program and YBC FEIR Alternatives

Street traffic noise would continue to be the dominant noise source in YBC after development of the Main Program or any of the YBC FEIR alternatives. Differences in methodology used to project for 1988 traffic volumes for the YBC FEIR and for this Supplement (see Appendix C, p. 251) preclude a meaningful direct comparison between resulting traffic noise levels. The YBC FEIR states on p. 395 that the increases in traffic associated with the highest-density alternatives (A and D) would increase the 24-hour CNEL (similar to Ldn) /1/ by less than 2 dBA over the noise level that would exist in 1980 without the YBC development (a noise difference of 3 dBA is barely perceptible to the typical human ear). Thus, the average noise environment in YBC in future years would be essentially the same, with or without development (YBC FEIR, p. 396). Table 22, below, shows traffic noise levels calculated to be generated by existing (1981) traffic and by 1988 traffic projected to be present after development of the Main Program. The table indicates that similar to the conclusion drawn in the YBC FEIR, traffic noise in YBC would not be perceptibly greater after full development than it is now. Table 22 shows that both existing and future roadside noise levels (Ldn) in YBC range from about 70 dBA to about 75 dBA. Existing noise levels (Ldn) at both existing and proposed housing sites in YBC range from about 65 to 74 dBA (see Table 9, p. 88).

Noise level differences between any two of the YBC FEIR alternatives or between an alternative and the Main Program are likely to be less than differences between noise levels with and without the project. The average noise levels of all four YBC FEIR alternatives and of the Main Program, therefore, would be essentially the same.

Noise levels in the YBC area are, and would continue to be, incompatible with some uses, particularly housing, without some mitigation. Land use / noise compatibility is discussed on pp. 396-407 of the YBC FEIR. The Main Program would provide more housing, considered to be the most noise-sensitive use, than would any if the YBC FEIR alternatives. The San Francisco Environmental

TABLE 22: ESTIMATED AND PROJECTED ROADSIDE* TRAFFIC NOISE**

Street Segment	Noise Level** in dBA			
	1981 Existing		1988 Main Program***	
	Peak-hour Leq	Ldn	Peak-hour Leq	Ldn
Mission St. +	71	71	71	71
Howard St. +	73	71	74	72
Folsom St. +	72	74	72	74
Harrison St. +	73	71	74	72
Fourth St. ++	73	73	75	75
Third St. ++	70	70	71	72

* At 15 meters or about 50 feet from the center of the roadway

** The noise model used was calibrated to existing measured noise levels.

***Includes Existing and Base Case traffic.

+ between Fourth St. and Third St.

++ between Mission St. and Howard St.

SOURCE: Environmental Science Associates, Inc., using U.S. Department of Transportation, FHWA Highway Traffic Noise Prediction Model, 1978, FHWA-RD-77-108, and based on traffic data form TJKM.

Protection Element's maximum "satisfactory" noise level for residences is 60 dBA Ldn; the California Noise Insulation Standards/4/ set a maximum acceptable limit of 60 dBA CNEL (similar to Ldn)./2/ Housing would be provided on CB-1, EB-2, SB-3, SB-2 and WB-3 under the Main Program. Hotel rooms (2,200) would be provided on CB-1. These would be subject to the same standards as the residential uses. Traffic noise levels at the center of all of these blocks would be about 65 to 70 dBA (Ldn)./3/ Any housing or hotel rooms on any of these blocks, therefore, would be exposed to noise levels requiring mitigation. Noise levels near the periphery of each block would be about 75 dBA Ldn, so an exterior noise reduction of up to about 30 dBA would be

necessary to meet the California Noise Insulation Standard of an interior CNEL of 45 dBA. Measures such as installing double-pane glass windows and sound-insulating materials in residential buildings may be necessary.

Since the exact nature of the cultural uses in the Main Program is not known, it is assumed (as a worst-case estimate) that the Environmental Protection Element guidelines/^{2/} for classrooms and libraries, a maximum satisfactory level of 65 dBA Ldn, apply. Cultural space is proposed for CB-1, CB-2, CB-3 and EB-2. The 24-hour Ldn at CB-1's cultural space in the Jessie St. Substation would be about 65 dBA/^{3/}, at the upper limit of the Environmental Protection Element's "satisfactory" level. Some noise insulation may be necessary. Cultural uses on CB-2 and CB-3 within 250 ft. of Fourth St. and within 500 ft. of Mission, Third, Folsom or Howard Sts. would be in areas exceeding the 65-dBA Ldn guideline. Noise insulation may be necessary to reduce outdoor noise by up to 25 dBA Ldn in order to achieve an indoor Ldn level of 45 dBA, the maximum level at which concentration can generally remain uninterrupted. The project developer would be required to perform an analysis of the noise reduction necessary, and include needed noise insulation features in cultural facility design. EB-2 would have 200,000 sq. ft. of cultural space, possibly a major museum. Placement of a museum anywhere within about 250 ft. of Third, Mission or Howard Sts./^{3/}, a restriction which takes in all of EB-2, would exceed "satisfactory" levels, and require some noise insulation. About a 20-dBA reduction of outdoor noise would be needed to bring indoor levels down to about 45 dBA Ldn.

The Environmental Protection Element's maximum satisfactory Ldn noise level for retail commercial uses is 70 dBA. (This guideline is most likely to apply to the amusement, recreation and entertainment uses.) Exterior noise levels at proposed retail commercial uses on CB-1, CB-2, CB-3, EB-2, SB-3, SB-2, SB-1, WB-3 and WB-1, placed within about 160 feet of Fourth or Folsom Sts., or within about 80 feet of Mission, Third, Howard or Harrison Sts., would exceed this limit./^{3/} In these cases, an analysis of noise reduction requirements would have to be performed by the project developer, and the needed noise insulation features included in building design. At most, a roughly 20-dBA

reduction of outdoor noise (with building windows closed) would be needed to bring indoor noise down to a 50-55 dBA noise level, which is generally acceptable for retail commercial activities (i.e., speech would not be strained or interrupted). This could be accomplished with tight building construction.

Activities on CB-2 itself would be additional noise sources. The "gardens" uses (see I. Background, p. 1) and the 135,000 sq. ft. of amusement/recreation/entertainment would be centers of visitor activity. Outdoor performance areas are proposed for some of the "gardens." Among the noises likely to occur are general crowd noise, unamplified music and amplified music. A noise measurement survey conducted by Environmental Science Associates, Inc./5/ found that crowd noise is about 65-70 dBA (15-minute Leq) at 20 ft., unamplified folk music (strings and voice) is about 70-75 dBA at 20 ft. (15-minute Leq), an unamplified trumpet is 75-80 dBA (5-minute Leq) at 90 ft., and amplified music about 85-90 dBA at 240 ft. (15-minute Leq)./6/

Woolf House, subsidized housing for the elderly on WB-3, could be adversely affected by amplified music from CB-2. Placement of an amphitheatre at CB-2's southwestern corner, across the intersection of Fourth and Howard Sts. from Woolf House, could expose Woolf House to exterior noise levels of up to 95 dBA from amplified musical performances in the amphitheatre (assumes amphitheatre "faces" Woolf House and that there are no intervening structures). Placement of the amphitheatre near the northeastern end of CB-2, roughly 1,000 ft. away from Woolf House, and facing its open end away from Woolf House, would result in maximum noise levels of about 65 dBA at Woolf House. This noise level would be masked by traffic noise along Fourth and Howard Sts. Since it may be difficult to retrofit Woolf House with needed noise insulation should an amphitheatre or other outdoor performance area be placed across the street, careful design and location of the amphitheatre would be necessary to control noise impacts on Woolf House residents.

Variants

Variant A, the Reduced-Housing/Increased-Office-and-Retail Variant for CB-1, would reduce the number of dwelling units, but increase the amount of office and retail space on CB-1 over that proposed under the Main Program. This would result in exchanging a noise-sensitive use (housing) for less noise-sensitive uses (office and retail). Housing anywhere on the block would be exposed to traffic noise levels of 65-75 dBA (Ldn), and thus require noise insulation features in the building design. In addition, the retail commercial and hotel uses on CB-1, as well as CB-1's function as a gateway to all of YBC, would contribute to frequent late-night activity noise on CB-1. Reducing housing on CB-1 would reduce the 24-hour population exposed to possibly annoying noise levels.

Eliminating housing on CB-1, as proposed under the No-Housing Variant, would further reduce the impacts discussed above.

The Housing Variant for CB-2 would introduce this noise-sensitive use where none was proposed under either the YBC FEIR alternatives or the Main Program. Traffic noise levels anywhere on CB-2 would be great enough to exceed acceptable standards for residential use: 60-dBA Ldn for the San Francisco Noise Element and 60-dBA CNEL for the State Noise Insulation Standards. The Ldn would be about 72-75 dBA near the edges of the block, and about 64-67 dBA at its center./3/ Activities on CB-2 could disturb CB-2 residents. Crowd noise near the center of CB-2 may be audible over traffic noise, but near the edges of CB-2 traffic noise would dominate. An unamplified trumpet 25 ft. away from a first- or second-story residential window would produce noise levels of about 85-90 dBA at that window, however, clearly audible over traffic noise. Should an amphitheatre be constructed near the central portion of CB-2, housing roughly 300 feet away (near the edges of the block), could be exposed to amplified music levels of up to 90 dBA. Designing housing to mitigate either of these peak noise levels could require the inclusion of noise insulation, which could reduce outdoor noise levels by about 40-45 dBA.

By increasing the amount of housing, Variant C, the Increased-Housing / Reduced-Office Variant for EB-2 would increase the number of sensitive receptors exposed to traffic and YBC activity noise. Traffic noise at the part of the block most remote from surrounding streets would have an Ldn near Mission, Third or Howard Sts. of roughly 72 dBA. The only noise from activities on CB-2 likely to be audible across Third St. on EB-2 would be occasional peak noises such as those from amplified music. Assuming minimal screening by some buildings on CB-2, amplified music from near the center of CB-2 would produce levels of up to 70-75 dBA at the edge of EB-2. This might be audible during lulls in traffic noise, but would most likely be masked by traffic noise most of the time. Noise insulation required to reduce traffic noise impacts would be sufficient to mitigate activity noise impacts as well.

FOOTNOTES

/1/ CNEL: the Community Noise Equivalent Level, which is similar to Ldn except that sound level measurements taken between 7:00 p.m. and 10:00 p.m. are weighted 5 dBA higher than daytime sounds, in addition to the 10 dBA 10:00 p.m. to 7:00 a.m. weighting. In practice, CNEL and Ldn rarely differ by more than 2 dBA.

/2/ Environmental Protection Element of the Comprehensive Plan of San Francisco, San Francisco Department of City Planning, August 1974.

/3/ Assumes a paved ground surface, no reflections and no buildings between street noise sources and the receptor.

/4/ Title 25, Chapter 1, Subchapter 1, Article 4, of the California Administrative Code.

/5/ At Golden Gate Park on December 6, 1981, and at the public celebrations for the opening of the George R. Moscone Center on December 13, 1981. A Bruel and Kjaer Sound Level Meter, Model 2206, was used.

/6/ The amplified music was measured in the convention hall at the Moscone Center, and is likely to be louder than a comparable situation outdoors. Crowd noise was measured just inside the entrance to the convention center, and, although more comparable to outdoor noise than the amplified music, should also be taken as worst-case.

I. RESOURCE USE

1. ENERGY

The Proposed Main Program and YBC FEIR Alternatives

Energy used in Construction. The Main Program and the YBC FEIR alternatives would all consume energy in the excavation and hauling of earth for building foundations, the construction equipment used to erect the buildings and the fabrication and delivery of construction materials. Table 23, below, shows estimated construction energy, based on the total square footage of structures to be built under each alternative and the Main Program.

TABLE 23: ESTIMATED CONSTRUCTION ENERGY FOR YBC STRUCTURES TO BE BUILT, 1977*

<u>Case:</u>	<u>Construction Energy (trillion BTU)</u>
<u>YBC FEIR Alternatives:</u>	
A	10.8
B	6.0
C	4.4
D	12.8
<u>Proposed Main Program</u>	7.6

* 1977 was chosen as the base year for comparability with the YBC FEIR; the table shows energy needed to build all structures constructed since 1977, as well as to build those not yet constructed. YBC FEIR Alternatives C and D do not include the energy necessary to construct the George R. Moscone Convention Center, roughly 0.7 trillion BTU.

SOURCE: Environmental Science Associates, Inc., using YBC FEIR methodology.

These estimates are approximate, and include only energy used in building erection and materials; energy used for excavation and removal of earth in foundation construction cannot be quantified at this time, because exact basement depths and sizes are not known.

Operations after Development. The estimated annual energy uses for each YBC FEIR alternative and the Main Program (at full development) are shown in Table 24. The table shows both the energy used directly by each development case, and the equivalent energy use at the source of the energy (this adjusts for energy losses in generation, transmission, and distribution of each form of energy). These estimates were based upon the number of square feet of each type of use (residential, commercial, office, industrial and convention center) planned and on the total vehicle miles traveled by traffic generated under each case (see section F. Transportation). These estimates can be considered "worst-case" estimates./1/ All structures were assumed to be constructed or renovated to meet applicable State Energy Commission Standards./1/

Table 24 indicates that Alternative C would require the lowest commitment of fossil fuels for both electricity and natural gas. The other YBC development cases in order of increasing commitment of natural gas are Alternative B, the Main Program, Alternative A and Alternative D. In order of increasing electricity commitment, they are the Main Program, Alternative B, Alternative A and Alternative D. Table 24 indicates that the Main Program would require less vehicular fuel than would Alternatives A, B and D, but more than Alternative C.

The annual and daily variations in demand for electricity and natural gas under the Main Program are shown in Figures 17 through 20, pp. 185 - 188. Of primary interest in these Figures is peak demand data, because it is during peak demand periods that the capacity of an energy system is likely to be exceeded. For electricity, peak demand month for the YBC FEIR alternatives and the Main Program is September, due to increased electric demand from air-conditioners (Figure 17, p. 185); therefore, the daily demand graph shows

TABLE 24: PROJECTED ANNUAL ENERGY CONSUMPTION: MAIN PROGRAM AND YBC FEIR ALTERNATIVES

	Electricity		Natural Gas*		Vehicular Fuel		TOTAL
	<u>KWH+</u>	<u>BTU++</u>	<u>cu.ft.+</u>	<u>BTU++</u>	<u>gal.+</u>	<u>BTU++</u>	<u>BTU++</u>
<u>YBC</u> <u>FEIR</u> <u>Alt.</u>							
A	140	1.44	306	0.34	11.8	2.70	4.48
B	88	0.92	189	0.21	8.2	1.88	3.01
C	50	0.52	174	0.19	4.7	1.08	1.79
D	152	1.56	844	0.93	11.8	2.70	5.19
Proposed Main Program	86	0.89	284	0.31	5.95	1.37	2.57

* The YBC FEIR assumed that fuel oil would be used in structures over a certain size, because of restrictions on the natural gas supply at the time. This assumption is no longer valid, and all numbers have been corrected to the assumption that natural gas would be used in all structures.

+ KWH, cu. ft. and gal. are in millions.

++ BTU are in trillions

SOURCE: Environmental Science Associates, Inc., using YBC FEIR methodology, and traffic data from TJKM.

a typical day in September. Peak demand occurs at 5 p.m. on such days (Figure 18, p. 186). The PG&E Northern California Service Area peak-demand period for electricity is during late afternoons in August, not September. This difference is because San Francisco experiences heavy fog most August late afternoons, making August afternoons cooler, in general, than September afternoons, when San Francisco experiences less fog. For natural gas, the peak demand month for the YBC FEIR alternatives and the Main Program is January, due to increased demand from space heaters (Figure 19, p. 187); therefore, the daily demand graph shows a typical day in January. Peak demand

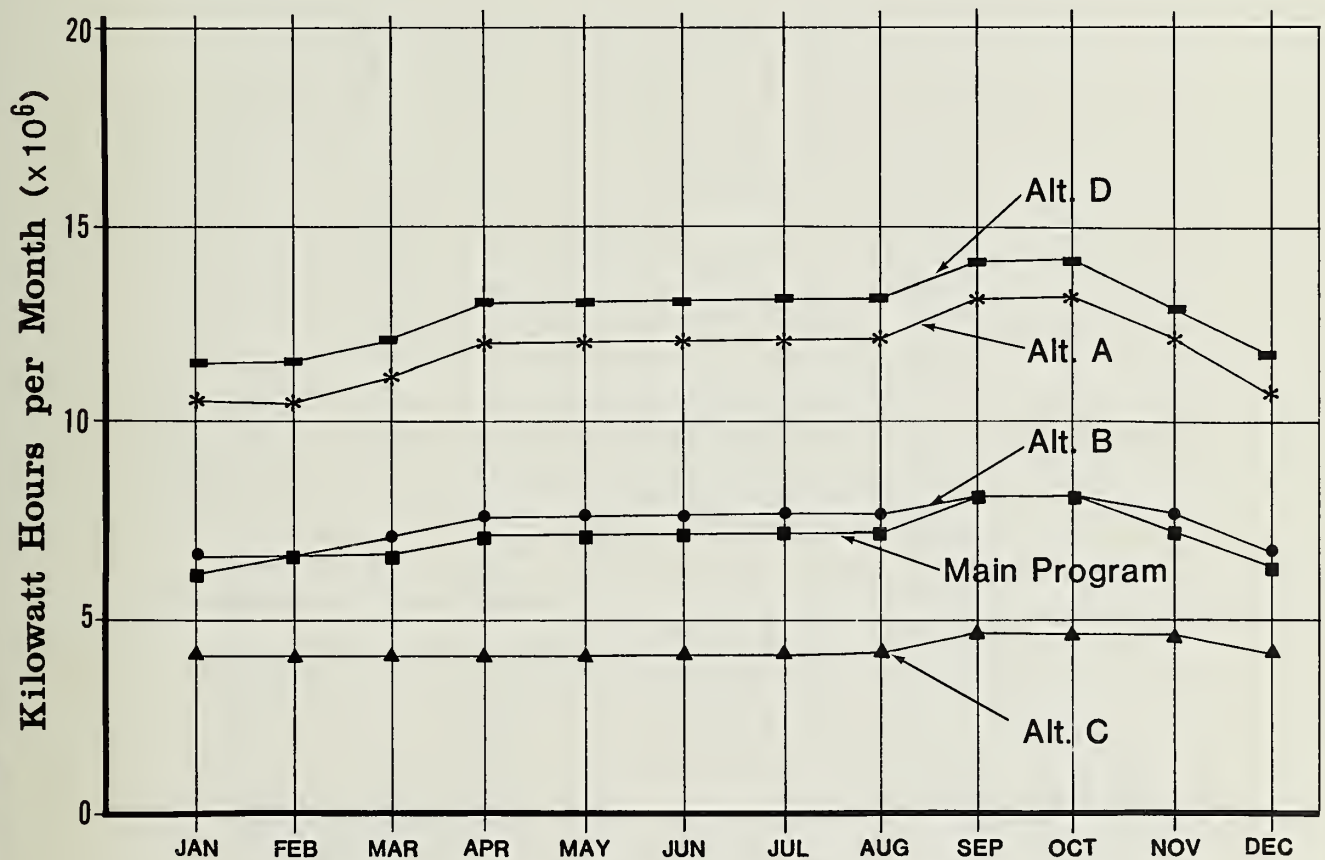
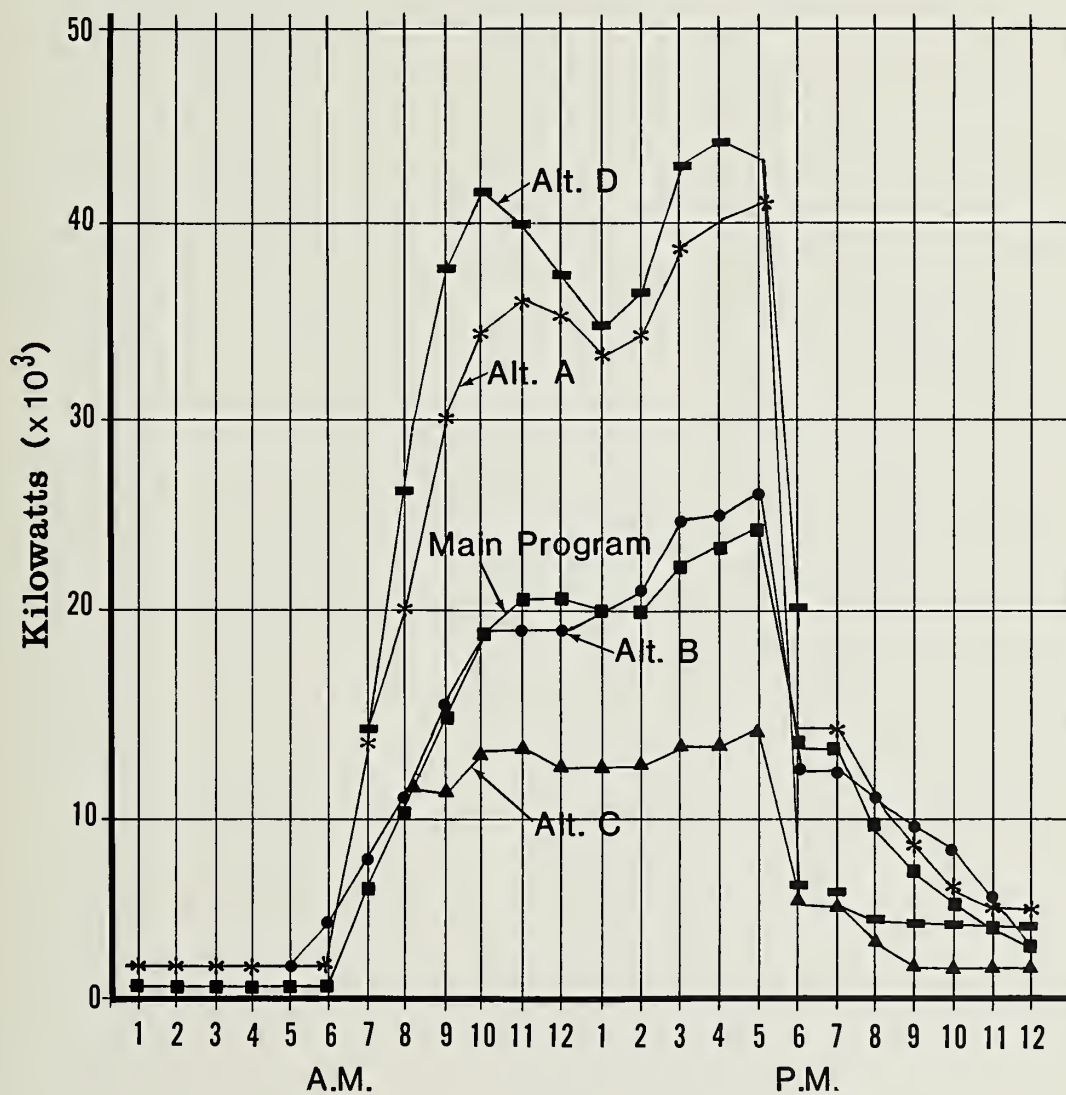


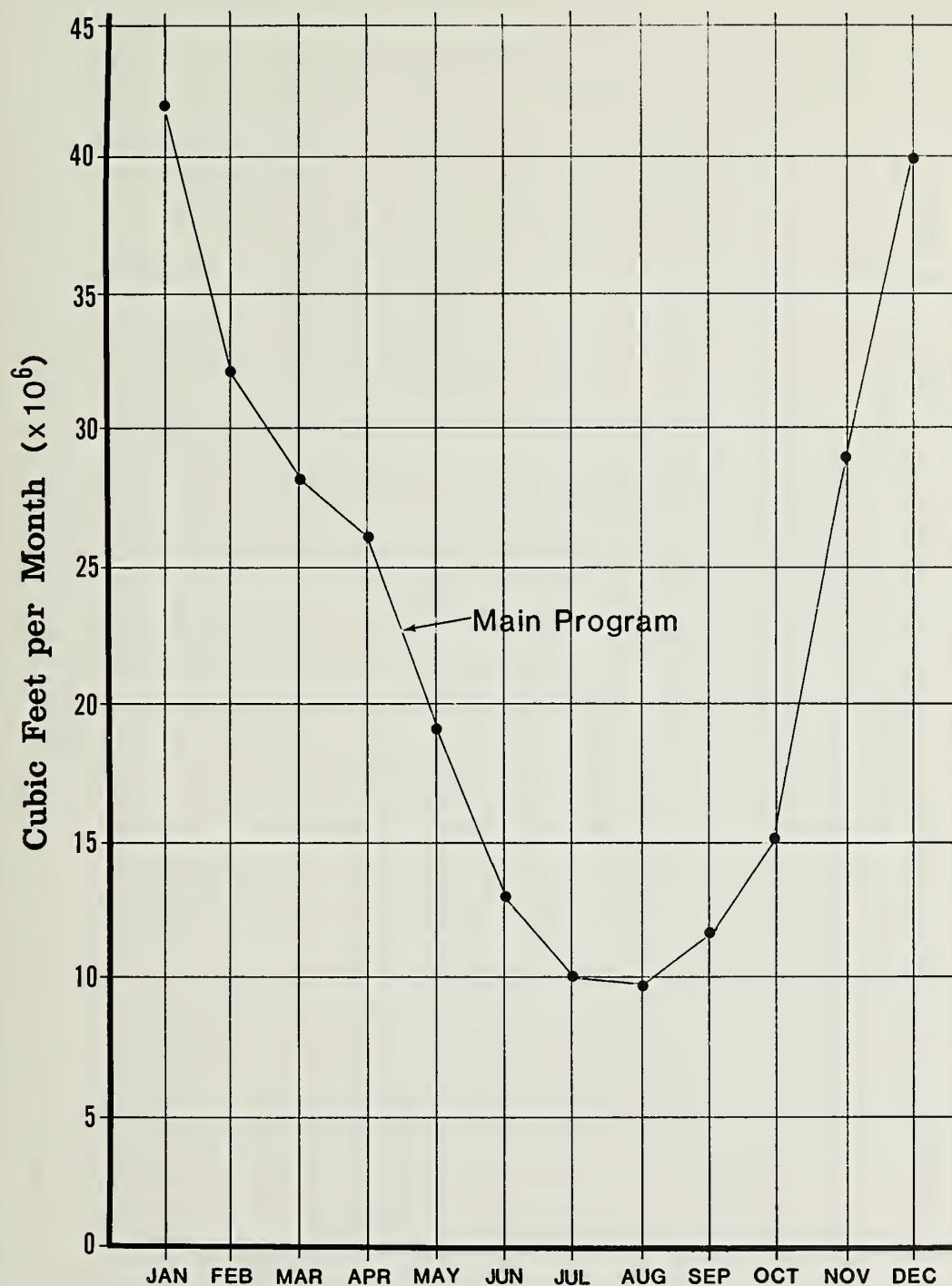
FIGURE 17:
Annual Electricity Consumption, Main Program and YBC FEIR Alternatives

SOURCE: Environmental Science Associates, Inc.,
Using YBC FEIR Methodology



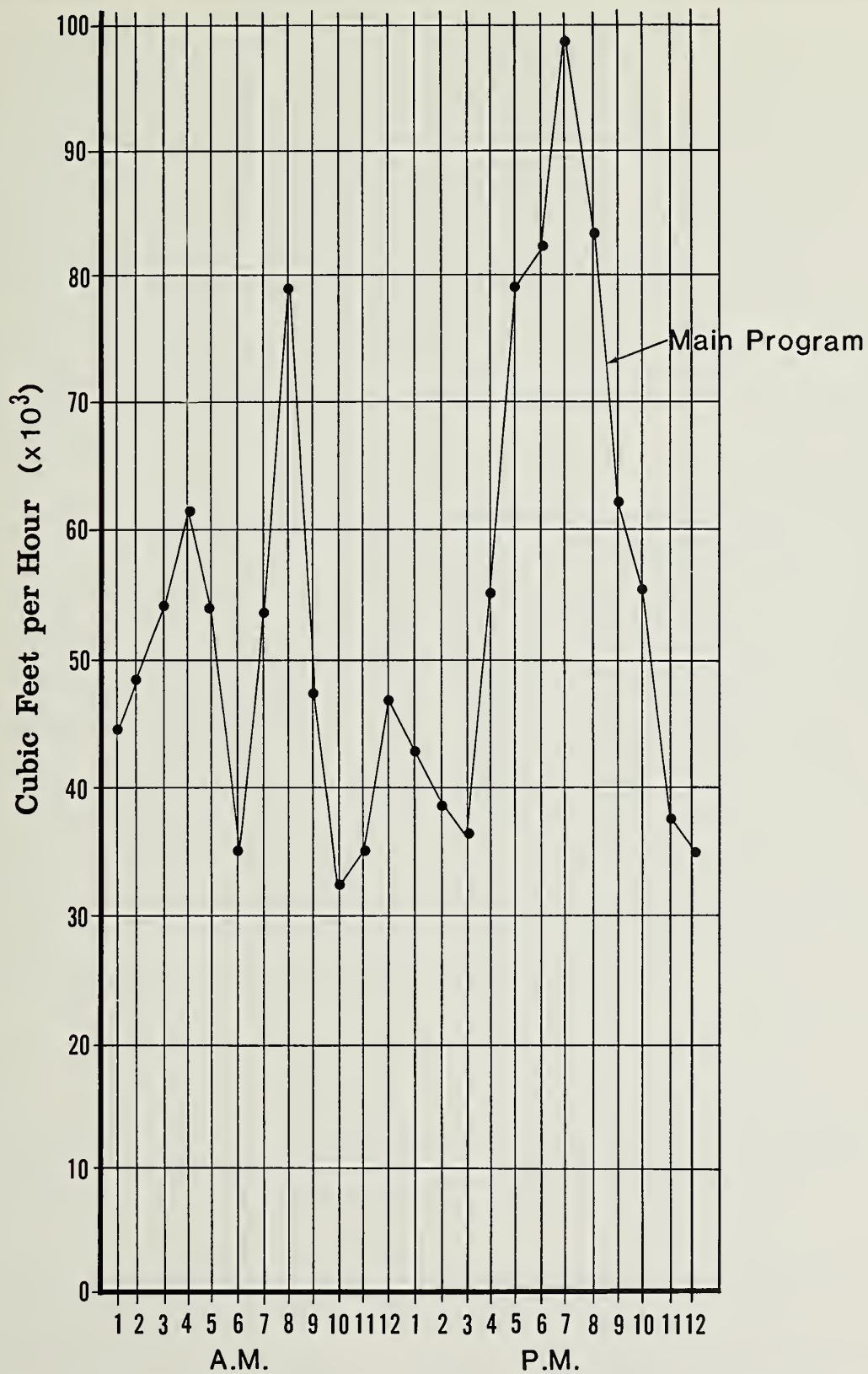
SOURCE: Environmental Science Associates, Inc.,
Using YBC FEIR Methodology

FIGURE 18:
Daily Electricity Demand, Main
Program and YBC FEIR Alternatives



SOURCE: Environmental Science Associates, Inc.,
Using YBC FEIR Methodology

FIGURE 19:
Annual Natural Gas Consumption
Main Program



SOURCE: Environmental Science Associates, Inc.,
Using YBC FEIR Methodology

FIGURE 20:
Daily Natural Gas Demand,
Main Program

occurs at 7 p.m. on such days, as buildings start to cool and the evening meal is prepared. The PG&E Norther California Service Area peak demand period for natural gas is early evening hours in January, which coincides with that projected for YBC. Figures 45 through 48, pp. 413, 415, 417 and 419 in the YBC FEIR show annual and daily variations in electricity and natural gas demand for the YBC FEIR alternatives. A comparison cannot be made between the natural gas demands shown in the YBC FEIR and those for the Main Program, because the YBC FEIR assumed that fuel oil, instead of natural gas, would be used in the largest buildings (as required by then-effective regulations, since rescinded).

Central Block 1 under the Main Program would demand more energy than any other block in YBC. CB-1 as a whole would demand less energy under the Main Program than would Alternative D uses for the block, but more than Alternatives A, B and C. The Main Program for CB-1, however, would require more natural gas than would any of the YBC FEIR alternatives for the block./2/ Its projected annual demand of 98.1 million cu. ft. would be about twice that of Alternative A (48.5 million cu. ft.), the most energy intensive of the YBC FEIR alternatives for CB-1. The Main Program's hotel uses would be responsible for about 80% of this demand. This high proportion is due to: 1) hotels demand large quantities of natural gas for cooking (restaurants, room service), space heating and water heating; 2) 2,200 hotel rooms in one or more high-rise hotels are proposed for the block.

Variants

Table 25 below, compares the projected energy demands of the proposed variants with those of the Main Program uses on corresponding blocks.

Variant A, the Reduced-Housing/Increased-Office-and-Retail Variant for CB-1, exchanges 300 of the market-rate dwelling units in the Main Program for an additional 400,000 sq. ft. of office space and 90,000 sq. ft. of retail commercial space (part of a department store). This exchange results in a

TABLE 25: PROJECTED ANNUAL ENERGY CONSUMPTION: MAIN PROGRAM AND VARIANTS, BY BLOCK.

Case	Electricity		Natural Gas		Total
	KWH (million)	BTU (billion)	cu.ft. (million)	BTU (billion)	BTU (billion)
Central Block 1:					
Reduced-Housing/ Increased-Office- and-Retail Variant	19.6	200	100.1	110	310
No-Housing Variant	13.3	136	83.3	92	228
Main Program	13.9	143	98.1	108	251
Central Block 2:					
Housing Variant	10.2	104	26.1	29	133
Main Program	9.8	101	17.4	19	120
Eastern Block 2:					
Increased-Housing Variant	8.6	88	34.3	38	126
Main Program	12.4	127	30.3	33	160

SOURCE: Environmental Science Associates, Inc., using YBC FEIR methodology

small increase (2%) in natural gas demand for the block, and a greater increase (41%) in electricity demand (primarily for office machines and lighting). These increases would result in an energy demand about 59 billion Btu greater than for the Main Program, a roughly 24% total increase for CB-1.

Variant B, the No-Housing Variant for CB-1, eliminates the dwelling units proposed for CB-1 under the Main Program, but does not replace them with office space. The resultant total energy demand would be about 10% less than that for the Main Program on CB-1.

Variant C, the Housing Variant for CB-2, would result in an additional 300 market-rate dwelling units; all other Main Program uses would remain unchanged. This addition would cause a 4% increase in electricity demand, a 50% increase in natural gas demand and an overall 11% increase in total energy demand for the block.

Variant D, the Increased-Housing/Reduced-Office Variant for EB-2 would substitute 400 additional market-rate housing units for some of the office space proposed under the Main Program. This exchange would result in a reduced electricity demand (for office machines and lighting), but an increased natural gas demand (for residential uses) for the block. Because electricity is a less efficient fuel than natural gas (due to generation and transmission losses) the at-source energy savings (and fossil fuel savings) resulting from reducing its demand outweigh the energy cost of increasing the natural gas demand. The net result is a total energy demand for Variant D about 20% less than that for the Main Program for EB-2.

FOOTNOTES

/1/ Since YBC FEIR methodology was used in these calculations, the standards assumed are those that were in effect in January, 1978. Only the residential standard has been changed since then. The new residential standard, scheduled to take effect July 1, 1982, is more stringent than that assumed in this Section, but would result in numbers no more than 10% lower than those shown in Table 24 for the Main Program. All numbers in Table 24 should be, therefore, considered worst-case.

/2/ In order to facilitate a comparison between the new uses and the YBC FEIR alternatives, the natural gas demands for the YBC FEIR alternatives for this block were recalculated to assume that all space heating would be done with natural gas. This differs from the YBC FEIR, which assumed that fuel oil would be used in buildings over a certain size.

2. WATER

The Proposed Main Program and YBC FEIR Alternatives

Projected total average daily water demand, by type of land use, is shown for the Main Program and compared to the YBC FEIR Alternatives in Table F-1, Appendix F, p. 267. It is assumed for worst-case analysis that the hotels and other buildings would be at 100% occupancy. The YBC FEIR, pp. 427 - 432, discusses the water use impacts of the YBC FEIR alternatives.

The Main Program uses would require a total average of about 1,800,000 gallons of water per day./1/ This is approximately 27% more water than required by YBC FEIR Alternative D, which would have allowed the greatest amount of development of the YBC FEIR alternatives and which would require a total average of 1,460,000 gallons per day. In addition to the amount cited above, the Main Program would include some decorative fountains in the project design which would use water. The San Francisco Water Department would be able to provide the projected water requirements of the proposed Main Program uses without any alterations in the water treatment and distribution system./2/

Variants

Projected total average daily water demand by type of land use, is shown for the Main Program and compared to the variants in Table F-2, Appendix F, p 259. It is assumed for worst-case analysis that the hotels and other buildings would be at 100% occupancy.

The Main Program would require a total average of about 1,800,000 gallons of water per day./1/ Three of the variants would generate a greater water demand: with Variant A for CB-1, YBC would require about 1,810,000 gallons of water; with Variant C for CB-2 YBC would require about 1,860,000 gallons of water per day; with Variant D for EB-2 YBC would require about 1,830,000 gallons per day./1/ This would be an additional 10,000, 60,000 and

30,000 gallons per day, respectively. The San Francisco Water Department would be able to provide the projected water requirements of the proposed variants without any alterations in the water treatment and distribution system./2/

FOOTNOTES

- /1/ Based on water consumption factors in Tables F-1 and F-2, Appendix F, pp. 267 and 268.
- /2/ J.E. Kenck, Manager, City Distribution Division, San Francisco Water Department, letter, December 28, 1981.

J. GEOLOGY AND SEISMOLOGY

The Proposed Main Program and YBC FEIR Alternatives

Geologic and seismic impacts for all the YBC FEIR alternatives and the proposed Main Program would be similar, and would differ only in the severity of the impact for each alternative. These impacts are discussed in the YBC FEIR on pp. 433 - 437 and are updated below.

Except for those areas underlain by bedrock (about 10% of the site), the unconsolidated materials underlying the site form a poor foundation base for high-rise structures. Most high-rise buildings in the area are supported on piles driven down to the Colma formation. Hazards associated with excavation are dewatering and movement of material into excavation pits. Older brick and masonry buildings, streets and underground utilities would be especially prone to damage should settlement caused by dewatering take place.

The greatest potential earthquake hazards would most likely be in the southwestern portion of YBC. This area is the most prone to liquefaction and subsidence, and would probably experience the most severe groundshaking during an earthquake. Reinforced concrete buildings in the area might be structurally damaged by a major earthquake, but would probably not collapse. Damage from a major earthquake is likely to be less severe elsewhere in YBC

where groundshaking would be less intense and subsidence and liquefaction potential would be less. Older brick buildings in the area might be damaged with some collapse of walls and cornices. Falling glass and other debris from high-rise buildings would also be a safety hazard during an earthquake. Should an earthquake occur during construction of buildings, there is a potential hazard for collapse of excavation pit walls and liquefaction of the sandy soils in the area. Quicksand conditions might occur locally.

Loss of life and injury from earthquakes is dependent, among other factors, on the time of day the earthquake occurs and the alternative chosen. For Alternatives A and D, with large amounts of office and retail commercial uses, the earthquake hazard would be greatest during the daytime when facilities in the YBC would be most heavily used. Because single-story wood-frame structures are generally accepted as being the safest types of structure during an earthquake, employees living in such structures would face less risk of injury at home than at work in the high-rise office buildings planned for YBC. The Main Program and Alternatives B and C, which have comparatively larger amounts of residential and hotel uses, would be most susceptible at night, when residents would be at home and travelers in their hotel rooms.

Under Alternative A, high-rise buildings would be constructed in CB-1, CB-2, and the eastern blocks. Bedrock outcrops would provide a stable foundation base for residential, commercial, industrial and parking structures in SB-3 and SB-4. Alternative A would require the second largest amount of excavation of all the YBC FEIR alternatives. The greatest loss of life and injury in YBC from an earthquake would probably occur if a major earthquake occurred during the daytime, when workers would occupy the offices, retail/commercial, light industrial, and downtown support buildings. Alternative A would have the second highest daytime population of all four YBC FEIR alternatives.

The amount of excavation for Alternative B would be less than for Alternative A because of the construction of a recreation/entertainment park instead of the office - commercial and entertainment - hotel complexes on

CB-2. Alternative B would result in a larger resident population and lower daytime office worker population in the project area than Alternative A. Thus, a major earthquake would pose more of a nighttime hazard to personal safety in YBC and less of a daytime hazard in YBC than would Alternative A.

Alternative C would be the least intensive use of YBC of all the alternatives. The same geologic and seismic impacts as Alternative A would apply, although, in terms of excavation, dewatering, and safety hazards during an earthquake, they would be the least severe of all the alternatives. Alternative C would house the greatest number of permanent inhabitants out of all the alternatives; thus, a major nighttime earthquake would affect the most people in YBC under this alternative. Since Alternative C would have a smaller amount of office and retail/commercial space than other alternatives and would not include a convention center and a recreation/entertainment park, daytime activity would be less than for the other alternatives, thus reducing earthquake hazards in YBC during the daytime.

Alternative D would permit the most intensive use of YBC, and would therefore cause the greatest geologic/seismic impacts and hazards. More excavation, and so more dewatering, would be required than for all the other alternatives. Alternative D would have the highest amount of office and downtown support structures of all the YBC FEIR Alternatives. Thus, potential safety hazards in YBC from a major earthquake would be the highest of all the alternatives during daytime on weekdays. Conversely, conditions would be significantly less hazardous at night and during weekends when few people would be in the project area.

The proposed Main Program would be under the same geologic constraints as the other four alternatives. In general, more convention and entertainment facilities, market-rate housing, and hotel space, and less retail-commercial, office space, and downtown support buildings would be constructed than in the other four alternatives. The amount of grading, excavation, and dewatering is likely to be greater than in any of the YBC FEIR alternatives, however, due to the underground construction (ballroom/exhibit space and parking garage) on CB-2 in the Main Program. This construction would not occur on CB-2 under any

of the YBC FEIR alternatives. The Main Program could have a higher nighttime population than daytime population, increasing earthquake safety hazards at night and reducing them during the day in YBC in comparison with the other alternatives. Most of the office, retail-commercial, and institutional space would be placed on unstable soils; special foundation and structural considerations (e.g. pile foundations for high-rise buildings) would be needed in these areas. Areas underlain by stable bedrock would be occupied mostly by market-rate housing, with some retail-commercial, light industrial, institutional, and office space.

Variants

Under Variant A, the Reduced-Housing/Increased-Office-and-Retail Variant for CB-1, more office space would be constructed on CB-1 than under the Main Program, probably requiring more excavation and slightly increasing the safety hazard on this block of a daytime earthquake due to the higher daytime population. The hazard to the nighttime population in YBC would be reduced as a result of the decrease in housing units on the block.

Under Variant B, the No-Housing Variant for CB-1, housing units would not be constructed on CB-1. If the reduction in floor area from not building housing were achieved by leaving the land not used for housing open, the impact from excavation and earthquake hazard would be reduced on this block.

Alternatively, if the land not used for housing were used for office space, so that the height of buildings were reduced, but the floor area held constant, then the impacts would remain the same as under the Main Program.

Under Variant C, the Housing Variant for CB-2, the number of market-rate dwelling units on CB-2 would increase over that in the Main Program, probably requiring more excavation and creating more of a nighttime earthquake safety hazard on this block than would occur under the Main Program.

Under Variant D, the Increased Housing/Reduced Office Variant for EB-2, EB-2 would have more housing units and less office space than under the Main Program. The amount of excavation would probably not change substantially

from what would be required under the Main Program; earthquake safety hazards would increase during the nighttime and decrease during the day, in comparison with the Main Program. The number of residences exposed to subsidence and liquefaction hazards would also be increased.

K. HYDROLOGY

The Proposed Main Program and YBC FEIR Alternatives

Potential hydrologic impacts are discussed in the YBC FEIR on pp. 438-440. Hydrologic impacts associated with development of the project area would be: 1) dewatering and its effects; 2) coverage of the ground surface, which affects groundwater recharge and surface runoff; 3) possible overflows of sewer/storm drains during large storms; and 4) seepage of groundwater into subsurface structures.

Any building in YBC that would have a basement level, especially high-rise buildings, would probably require dewatering during construction except in those areas of YBC underlain only by bedrock (see Figure 14, p. 93). Since the water table is only 7 to 13 ft. below the surface in the YBC area, buildings with basements would probably extend below the water table, necessitating dewatering during construction. Dewatering often causes subsidence in surrounding areas, the extent of which depends on the depth of excavation and the duration of dewatering. This subsidence could cause damage to streets, underground utility lines and surrounding older buildings which are placed on shallow and relatively weak foundations. The Department of Public Works generally requires that a surety bond be posted holding the contractor responsible for damages to streets and utilities, should they occur.

Alternative D would have the most extensive construction of all the alternatives, and would probably have the greatest hydrologic impact. It is likely that this alternative would require more dewatering than any of the other alternatives, due to the high intensity of office and downtown support construction. Almost all of the land area would be covered with impermeable surface, which would generate the greatest amount of runoff for all the

alternatives. Dewatering impacts would be about the same for Alternative B as for Alternative A. Alternative B would have more permeable surface than Alternative A, allowing more water to be absorbed during storms and creating less runoff. Alternative C would have the least hydrologic impact of the four alternatives; however, the existing convention center would increase the impact of Alternative C due to increased dewatering and decreased surface permeability. With less intensive development than the other Alternatives, dewatering requirements would also be less. With more park land, less paved surface and fewer underground structures than the other Alternatives, more permeable surface would be created allowing increased water percolation into the ground.

The proposed Main Program would have the same types of hydrologic impacts as would the four YBC FEIR alternatives. Dewatering would probably be of the same extent as Alternative A or B. The San Francisco Redevelopment Agency would require that 60% of CB-2 and 40% of the roof of the convention center on CB-3 be open space; some of this area would be landscaped, and thus partly permeable to rainwater. The percentage of the water permeating into the soil that reaches the storm sewer system depends on the depth, porosity, and permeability of the soil, and the duration, intensity, and amount of rainfall. More of the area would be covered with impermeable surface than under Alternative C, preventing groundwater percolation opportunities available under Alternative C. The extent of additional dewatering to accommodate the proposed underground parking facilities on CB-2 would depend on the number of levels of parking, which is undetermined.

Variants

Variant A, the Reduced-Housing/Increased-Office-and-Retail Variant for CB-1, would create more office and retail space and less housing on CB-1 than would the Main Program. If excavation is more extensive, this could increase the extent of dewatering and may slightly reduce the amount of permeable surface available for groundwater percolation; the determinant would be the depth of any underground parking for this and all of the other variants.

Variant B, the No-Housing Variant for CB-1, would have same amount of office space on CB-1 than would the Main Program. Dewatering effects would be about the same or slightly less than the Main Program, and the amount of impermeable surface could be higher, since the landscaping often associated with housing development would not be present.

Variant C, the Housing Variant for CB-2, would create housing on CB-2. Landscaping for the housing units may reduce the area covered by impervious surfaces in comparison with the Main Program. This would reduce and delay runoff by increasing soil absorption, storage, and evapotranspiration.

Variant D, the Increased Housing/Reduced Office Variant for Eastern Block 2 (EB-2), has more housing and less office space than the Main Program uses for EB-2. If more landscaping is used for the housing, then more permeable surface would be available than under the Main Program.

L. ECOLOGY

The effects of the Main Program during construction would be similar to those of all four of the YBC FEIR alternatives (see YBC FEIR, pp. 441-443), and would occur on a continuing basis until completion in 1988. Construction activity would eventually destroy all of the weedy vegetation in YBC, forcing birds to leave the area and causing a reduction in their numbers proportional to the loss of habitat. Construction activity would also destroy many old sewer mains, forcing the rat population inhabiting them into adjacent structures and causing a need for temporary rat control efforts. The cat population may also be decreased.

Following construction, landscaping would provide habitat for wildlife. If landscaping in YBC is consistent with landscaping trends in San Francisco, it is likely that most of the plants would be non-native species. Wildlife would probably be restricted to insects, birds tolerant of the urban setting (e.g. domestic pigeon, house finch, English sparrow, Brewer's blackbird), and common soil animals. The size of the wildlife population on the site would be

proportional to the amount of landscaped land. Thus, due to the proposed two block park, Alternative C would probably provide for the largest wildlife population, and may attract species of wildlife in addition to those mentioned above; such as robin, mockingbird, starling, various salamanders and lizards, and red squirrel. Alternative C would have the highest wildlife population, because it would have the most open space. Alternative B would have the next to highest wildlife population, followed by Alternative A, the proposed Main Program and Alternative D.

The effect on rat populations in the project area would be about the same for all of the alternatives, since most of the area would be excavated regardless of the alternative. However, Alternative C would have the greatest potential for harboring a large rat population, especially if the sewer mains were not removed in CB-2 and park land were created on existing topography.

M. ARCHAEOLOGIC AND HISTORIC ASPECTS

The Proposed Main Program and YBC FEIR Alternatives

At the time of writing the YBC FEIR (1977), impacts on archaeological resources could not be identified, because existing resources had not been documented (see YBC FEIR, pp. 444-445). Since that time, two archival studies have been completed. In November, 1977, a program for preliminary testing for archaeological remains on CB-3 (the convention center block) was developed for San Francisco's Chief Administrative Officer, as the convention center developer, and was identified as a mitigation measure in the YBC FEIR (p. 508). Completed on July 1, 1978, the report found that no archaeologically important remains existed on CB-3./1/

The YBC FEIR also included a mitigation measure that an approved archaeological identification and monitoring program for the entire YBC area would be developed by the San Francisco Area Office of HUD, the Redevelopment Agency, and the State Historic Preservation Officer, and the subject of a

three-party agreement (YBC FEIR, p. 508). The "Memorandum of Agreement" (relative to cultural resources) was formulated on February 2, 1979. The agreement stated that the Redevelopment Agency would use HUD funds to prepare an archival study to identify specific locations in YBC having a potential to contain important archaeologic material. Based on the archival study, HUD, in consultation with the State Historic Preservation Officer, would determine if a site was eligible for inclusion in the National Register and for further study./2/

In November, 1980, HUD issued a Draft "Memorandum of Agreement" (relative to architectural resources)/3/, stating that the Jessie St. Substation at 222 Jessie St. (CB-1) was a National Register property, and that the following additional properties in YBC were eligible for inclusion in the National Register of Historic Places:

1. The Aronson Historic District (composed of buildings at 693 Mission St., 710 Mission St., and 87 Third St.);
2. The Mercantile Bldg. (710 Mission St.);
3. St. Patrick's Church (748 Mission St.);
4. The Jessie Hotel (179-181 Jessie St.); and
5. The Salvation Army Bldg. containing the Senior Activities Center (360 Fourth St.).

The San Francisco Redevelopment Agency proposed to preserve or renovate the Jessie St. Substation, the Mercantile Bldg., St. Patrick's Church and the Salvation Army Bldg. (Senior Activities Center), and demolish the Williams Bldg. (693 Mission St.), the Blumenthal Bldg. (87 Third St.) and the Jessie Hotel. HUD recommended that the Redevelopment Agency be allowed to demolish these buildings, subject to mitigations such as photographing the buildings and recording their floor plans prior to demolition. HUD determined that rehabilitation of these buildings was infeasible.

The Redevelopment Agency and HUD are currently in the process of consulting with the State Historic Preservation Officer and the Advisory Council on Historic Preservation to complete the Final "Memorandum of Agreement." The GSA Bldg. at 49 Fourth St., included in the Main Program but not in the YBC FEIR alternatives, was determined ineligible for the National Register by the GSA Regional Historic Preservation Officer on January 8, 1981./4/

On February 6, 1981, HUD determined that, "After the completion of the archival reports, the archeological testing in the Convention Center Block, other soils borings and excavations in the project, and consultations with the California State Historic Preservation Officer and the Staff of the Advisory Council on Historic Preservation, no artifactual material was identified which could be considered eligible for inclusion on the National Register of Historic Places."/5/ The Redevelopment Agency and HUD are consulting with the SHPO and the Advisory Council on Historic Preservation on a Memorandum of Agreement concerning Historic Buildings.

Under Alternatives A, B, and C of the YBC FEIR, St. Patrick's Church (756 Mission St., CB-1), the Jessie St. Substation (222-226 Jessie St., CB-1), the Senior Activities Center (at 360 Fourth St, SB-1, and owned by the Salvation Army), and the Mercantile Bldg. (at Mission and Third Sts.) would be retained. The Jessie St. Substation would be adapted to a different use (office and retail-commercial space). Alternatives A, B, and C would also enhance and complement the structures on CB-1 by the use of pedestrian concourses and the Redevelopment Agency's commitment to the allocation of 1% of construction costs to public fine art works (YBC FEIR, p. 448). Alternative D provided no guarantee of the preservation of these structures, and would not provide a pedestrian concourse or plaza to enhance the setting of St. Patrick's Church and the Jessie St. Substation.

Similar to Alternatives A, B and C, the proposed Main Program would preserve those buildings having the greatest architectural significance: St. Patrick's Church, the Jessie St. Substation, the Mercantile Bldg., and the Salvation Army Bldg. containing the Senior Activities Center. The Jessie St. Substation

would be adapted for office and retail or cultural uses. The Mercantile Bldg. has been rehabilitated and would remain as an office building. The GSA Bldg. (rated "B" in the Heritage Survey), along with the adjacent parking structure, would be demolished. All Heritage rated buildings in EB-1 and EB-2 would also be demolished. These buildings are: the Hess Bldg., 163-165 Jessie St; the Hotel Jessie, 167-179 Jessie St.; Breen's 71-77 Third St.; 81-85 Third St.; the Grace Bldg., 87-97 Third St.; the Gallatin Bldg., 674-676 Mission St.; and the Williams Bldg., 101 Third St. (see Table 10, p. 98 and Figure 16, p. 101).

In the Main Program on CB-1, pedestrian plazas would enhance the setting of the three retained buildings, as they would under Alternatives A, B, and C of the YBC FEIR. The structures themselves would be visible to pedestrians as under those alternatives. The commitment to public fine art discussed above would be part of the Main Program, as well. However, it is likely that new buildings proposed for CB-1 under the Main Program would be taller than those on CB-1 under any of the YBC FEIR alternatives. This could contribute to an imbalance in building scale which could diminish the apparent significance of the historic buildings. Although some of the land uses proposed differ from those considered in the YBC FEIR, effects on preserving or demolishing existing structures would remain the same. One exception, however, may be the underground parking garage proposed for CB-2. If the garage were two or more levels deep, unknown archaeologic resources, which have not previously been disturbed, might be uncovered.

The Memorandum of Agreement concerning Historic Buildings, being prepared by the Redevelopment Agency and HUD in consultation with the State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation, would require that new buildings on CB-1 and within 50 ft. of Mission St. on CB-2 be designed with height and scale to be compatible with existing historic structures./6/

Variants

All buildings to be preserved under the Main Program would also be preserved under any of the variants. However, Variant A, the Reduced-Housing / Increased-Office-and-Retail Variant for CB-1, would increase building heights over those for the Main Program in areas near or immediately adjacent to historic structures on CB-1.

FOOTNOTES

/1/ Allen Pastron, Archaeological Consultant, letter dated July 1, 1978

/2/ R.M. Utley, Deputy Executive Director, Advisory Council on Historic Preservation, letter dated February 2, 1979.

/3/ E. Handschin, Environmental Analyst, San Francisco Area Office, HUD, letter dated November 19, 1980.

/4/ Carl Blalock, Regional Historic Preservation Officer, GSA Region 9, letter dated January 8, 1981.

/5/ H. Dishroom, Area Manager, San Francisco Area Office, HUD, letter dated February 6, 1981.

/6/ Helen Sause, YBC Project Manager, San Francisco Redevelopment Agency, personal communication, May 1, 1982.

VII. MITIGATION MEASURES

VII. MITIGATION MEASURES

This section is organized in the same sequence as the Setting and Impact sections, with the same letter designating each impact category as in those sections. All suggested mitigation measures identified in the YBC FEIR and in the First YBC EIR Supplement that would pertain to the uses proposed in this Supplement for development of the Main Program are summarized at the beginning of each subsection and incorporated here by reference (pp. 447 - 509 of the YBC FEIR and pp. 77 - 85 of the First YBC EIR Supplement). Additional suggested mitigation measures are listed following the summary. Impact categories for which no YBC FEIR measures are applicable and no additional measures are suggested are omitted from the sequence. The suggested mitigation measures would be acted upon by the Redevelopment Agency Commission just prior to action by the Commission on each proposed land disposition and development agreement, and could be made conditions of approval on each agreement.

A. LAND USE, ZONING AND VISUAL ASPECTSAPPLICABLE YBC FEIR MEASURES

The Redevelopment Agency would require the allocation of 1% of the construction costs of all buildings except the subsidized housing to public fine art works.

APPLICABLE FIRST YBC EIR SUPPLEMENT MEASURES

The principles and design standards developed by the Redevelopment Agency's urban design consultants would include consideration of the effect of building design and layout on the visual context of existing buildings of identified architectural or historic merit on CB-1 (Assessor's Block 3706), both inside and outside of the Redevelopment Project Area.

The Redevelopment Agency and HUD are consulting with the State Historic Preservation Officer and Advisory Council on Historic Preservation, regarding a Memorandum of Agreement relating to Historic Buildings.

SUGGESTED ADDITIONAL MEASURES

The Redevelopment Agency would work with the developer to endeavor to make small, affordable retail/commercial spaces available.

Should housing be constructed on CB-2, the Redevelopment Agency would consider requiring the Central Blocks developer to design both housing and open space to eliminate any apparent territorial claim or "privateness" the housing may exert on the public open space on CB-2.

The Redevelopment Agency would require placement of sidewalk lighting so as not to interfere with the vision of passing motorists and to avoid creating reflective glare on adjacent buildings.

The Redevelopment Agency would consider requiring the developer of the Central Blocks to provide litter pick-up for areas within and adjacent to Central Blocks to maintain an attractive appearance within YBC.

The Redevelopment Agency would consider incorporating design measures to mitigate a possible visual effects of continuous adjacent tall buildings along the perimeter of CB-1 at Fourth, Market and Third Sts. These measures could include the provision of pedestrian-level windows and gateways that allow the passer-by to view activities in the interior of the block, and the use of building shape, color, shadow lines and texture to break up the line of continuous building surfaces.

The Redevelopment Agency would consider requiring that new housing on SB-2 be constructed so as to preserve views from the existing TODCO / Los Caballeros Dimasalang House toward CB-3 and the San Francisco skyline to the extent possible and feasible.

The Redevelopment Agency would consider requiring developers to provide space for resident-serving retail-commercial uses near all housing sites in YBC. The Redevelopment Agency has proposed 35,000 sq. ft. of space for this use on SB-2.

The SPUR study (June, 1981)/7/ recommends the following measures to preserve low- and moderate-income housing in South of Market. A public non-profit corporation should buy out residential hotels along Sixth St., rehabilitate them, and permanently dedicate them for low- and moderate-income housing. In order to minimize per-unit costs of housing development, the City should encourage the construction of relatively high densities and small units. The existing requirement for the inclusion of 10% low- and moderate-income units in all developments containing over 50 units should be applied to the South of Market area. Public land in South of Market should be made available to housing developers at below market rates in exchange for development of additional low- and moderate-income units on the sites. Existing fire zone regulations should be reviewed, and any found to be not absolutely necessary should be modified to reduce construction costs.

While the degree of mitigation attendant such action is speculative, consideration could be given to expanding the scope of City and County ordinances and programs designed to protect and expand existing low- and moderate-income housing. Expansion of existing ordinances may increase the protection of low- and moderate-income housing west of YBC (and throughout the City) from some possible effects of potential real estate speculation. It could also place a burden on property owners who find it difficult to meet their costs, thereby reducing the ability to maintain the quality and safety of such housing. Amending City ordinances would require action by the Board of Supervisors.

Rezoning the area west of YBC (between Fifth and Seventh Sts.) from C-3-R (Downtown Retail), C-3-G (Downtown General Commercial), C-3-S (Downtown Support and M-1 (Light Industrial) to an R (Residential) district would preserve housing in the area. Amending the City Zoning Map would require

action by the City Planning Commission, to approve and recommend the amendment to the Board of Supervisors, and by the Board of Supervisors, to adopt all or part of the recommended change. Although this measure could preserve housing west of YBC, it may not be able to preserve low-income housing. In addition, the rezoning could make the area more attractive for residential speculation than it would be under existing zoning by reducing the number and amount of permitted "incompatible" uses.

B. HOUSING AND BUSINESS RELOCATION

APPLICABLE YBC FEIR MEASURES

Housing Relocation

Under the settlement agreement in TOOR vs. HUD, a total of 1,500 housing units were to be provided in the City to help with the rehousing of people displaced from YBC. In response to this order, the Redevelopment Agency has provided 1,661 units (Table 5, p. 85, YBC FEIR). In addition to these rehabilitated housing units made available, displaced persons were also eligible for relocation benefits under the Federal Uniform Relocation Act of 1970. To accommodate a second court settlement agreement, four additional housing sites within the YBC area have been provided; in YBC FEIR Section V. B, these are described under the various YBC FEIR alternatives as Sites 1, 2, 3 and 4 (Table 7, p. 88, YBC FEIR).

Business Relocation

Pursuant to Federal relocation requirements, the Redevelopment Agency has provided financial aid to displaced businesses to help them relocate permanently within or outside the YBC area (YBC FEIR, p. 448).

C. SOCIAL CHARACTERISTICSAPPLICABLE YBC FEIR MEASURES

The YBC area is populated now almost entirely by low-income elderly people. The introduction of market-rate housing would broaden the population mix of the area by adding mostly a non-elderly population.

APPLICABLE FIRST YBC EIR SUPPLEMENT MEASURE

The Redevelopment Agency would consider requiring that the sales agreements of the market-rate units proposed on CB-1 specify that the purchasers must agree to occupy the units for at least one year after purchase.

SUGGESTED ADDITIONAL MEASURES

The Land Use mitigation measures listed on pp. 207 - 208 of this Supplement are applicable.

E. COMMUNITY SERVICESAPPLICABLE YBC FEIR MEASURES

The Redevelopment Agency would require that all developers install low-flow toilets, urinals, taps and showerheads to reduce total liquid wastes discharged into the sewers.

Discharge of dewatering wastes from construction sites would conform to the Industrial Waste Ordinance.

The Redevelopment Agency would require that all refuse be placed in metal dumpster containers to facilitate pick-up, and would encourage rooms for the storage of recyclable wastes in all buildings.

The Redevelopment Agency would require installation of bicycle racks near office building entrances for use by messengers.

All construction sites must be fenced under the Federal Occupational Health and Safety Administration Regulations.

The Redevelopment Agency would recommend security systems or bonded security guards for all office buildings, retail-commercial establishments, and housing. Implementation would be the responsibility of the developer. Street lighting should be designed for pedestrians as well as vehicles. The Department of Public Works would prepare lighting plans.

APPLICABLE FIRST YBC EIR SUPPLEMENT MEASURES

Before requesting that Jessie St. be vacated on CB-1, the Redevelopment Agency would consider requiring the developer to hire a qualified plumber to determine whether any existing buildings are connected to the sewer under Jessie St. Should Jessie St. be vacated and the sewer abandoned, any buildings that are currently connected would be reconnected to the mains in Fourth St. or Mission St. at the expense of the developer or the Redevelopment Agency.

F. TRANSPORTATION

APPLICABLE YBC FEIR MEASURES

The Redevelopment Agency would consider implementing the following measures to increase effective sidewalk capacity for pedestrians:

- Widen sidewalks wherever possible along Fourth and Third Sts. between Howard and Market by requiring that buildings be set back at least 2 to 3 ft. from the property line fronting the sidewalk. These setbacks would be most effective if implemented consistently over the entire length of a block.

- Work with the Department of Public Works, which authorizes permits for placement of sidewalk furniture, to control placement of width-restricting sidewalk furniture (street trees, benches, litter baskets, etc.).

The Redevelopment Agency would consider encouraging individual employers within YBC to implement the following transit and traffic impact mitigation measures:

- Implement "flex" time or staggered work hours. This would spread the peak loading period over several hours and reduce projected peak-hour and peak-15-minute volumes.
- Coordinate car pooling and van pooling among employees.

The Redevelopment Agency would consider encouraging the George Moscone Convention Center management to coordinate a shuttle service with the major hotels during conventions.

The Redevelopment Agency would require the following driveway placement and design standards:

- Place driveway openings at least 50 ft. from crosswalks.
- Make driveways a minimum of 24 ft. wide for two-way movements.
- Provide for at least 50 ft. of curb between adjacent driveway locations.
- Keep the number of driveways to a minimum with good design practice.

The Redevelopment Agency would consider working with the San Francisco Parking Authority to regulate parking rates in YBC public garages in order to discourage all-day parking (commuters) but allow short-term (1 to 4 hours) visitors to park inexpensively. The Redevelopment Agency would consider encouraging owners of private garages in YBC to implement a similar rate structure.

The San Francisco Department of Public Works and the San Francisco Police Department are responsible for regulating construction truck activity in San Francisco. Haul routes may be specified by the Department of Public Works as a condition of construction permits. In addition, the Redevelopment Agency would consider encouraging YBC contractors to direct trucks to and from the James Lick Freeway along Third and Fourth Sts. during off-peak traffic periods.

APPLICABLE FIRST YBC EIR SUPPLEMENT MEASURES

The Redevelopment Agency is currently (1982) preparing a Transportation Management Plan to address vehicular traffic circulation and automobile parking.

The Redevelopment Agency would consult with, or would require the project developers to consult with, the Department of City Planning and the Bureau of Traffic Engineering in designing the pedestrian access, vehicular access (including taxi and tour and charter-bus loading areas), and off-street loading facilities.

SUGGESTED ADDITIONAL MEASURES

The Redevelopment Agency would require the developers to coordinate construction activities in YBC with construction contractors for any concurrent nearby projects which are under construction, are planned for construction or later become known, in order to minimize cumulative traffic impacts due to lane closures or street excavation.

Construction contractors and utility companies would coordinate work schedules requiring trenching through the Committee for Utility Liaison on Construction and Other Projects (CULCOP) so that street disruption would take place during weekends and off-peak hours.

The Redevelopment Agency would consider providing off-street parking for construction workers on the development site, or at an off-site location within the project area, and consider requiring developers to provide Muni passes to construction workers to minimize temporary parking demand.

Calculations for pedestrian impacts in this Supplement include the assumption of at-grade mid-block crossings of Mission and Howard Sts., connecting the mid-block pedestrian plazas proposed for CB-1 and CB-2 with the convention center on CB-3. The San Francisco Department of Public Works would be responsible for implementing these crossings. If they were not implemented, projected conditions on Third and Fourth St. sidewalks would be worse than shown in the impact analysis, pp. 152 - 155 . The Department of Public Works is on record as opposing mid-block crossings in YBC for safety reasons (Jeffrey Lee, Director of Public Works and the Clean Water Program, letters dated August 14, 1980, May 12, 1981, and March 5, 1982, all on file with the Office of Environmental Review, Room 315, 45 Hyde St). The Department of Public Works recommends instead the use of mid-block pedestrian bridges over Mission and Howard Sts. If "at grade" pedestrian crossings are developed on Mission and Howard Sts., (between Third and Fourth Sts.) appropriate traffic control devices would be installed to reduce the potential for accidents involving pedestrians and delays associated with pedestrian-vehicle conflicts. The Redevelopment Agency would consider requiring that the developer provide pedestrian bridges, which would reduce these hazards.

The Redevelopment Agency would consider requiring developers to provide adequate, secure and safe bicycle parking to serve YBC residents and employees.

The Redevelopment Agency would consider limiting or excluding access from off-street parking facilities onto Mission and Market Sts. and requiring provision of access to Third and Fourth Sts. from new facilities, instead.

The Redevelopment Agency would consider requiring that off-street loading spaces be provided to meet actual demand, calculated according to San Francisco Department of City Planning, 1980, Center City Circulation Program; Pedestrian Circulation and Goods Movement, working papers 1,2, and 3

and Final Report. The Redevelopment Agency would work with the Chief Administrative Officer's Office to make convention center loading docks, driveways or other loading facilities available to uses on the convention center roof.

In recognition of the need for expanded transportation services to meet the peak demand generated by cumulative commercial development in the downtown area, the Redevelopment Agency would consider requiring the developers to contribute funds for maintaining and augmenting transportation service, in an amount proportionate to the demand created by the project, as provided by Board of Supervisors Ordinance Number 224-81 or any subsequent equitable funding mechanism developed and implemented by the City.

Transit agencies could provide additional transit vehicles, change headways, and possibly, shift routes on non-rail systems to alleviate the overload that would occur on the Muni, BART, A-C Transit, and the SamTrans mainline (Highway 101 Route) due to cumulative development. Implementation of this mitigation measure would depend primarily on the availability of funds and on actions initiated by the Metropolitan Transportation Commission (MTC) and the respective transit agencies and districts.

G. CLIMATE AND AIR QUALITY

APPLICABLE YBC FEIR MEASURES

The reduction of dust generated by excavation and other construction activities would be achieved by using construction-industry-accepted methods such as watering the site and covering load material in trucks.

Building height, shape, bulk, width, orientation, surface treatment and location with respect to other structures can all affect winds and shadows. The Redevelopment Agency would require developers of high-rise structures to conduct a microclimate analysis, including wind-tunnel studies, to determine design-specific impacts on pedestrian comfort and to provide a basis for design modifications to mitigate these impacts.

In the 1978 YBC EIS HUD required that one or more of the following specific measures be included in housing design to reduce indoor levels of pollutant exposure in all YBC housing:

- Housing units be at the second level or higher.
- Recirculation-type ventilation system and central forced-air heating system.
- Electric ranges in lieu of gas ranges.
- Emission vents of structures separated from air intakes by at least 15 feet.
- Air intakes elevated at least ten feet above street level.
- Avoidance of long linear blocks of structures.
- No direct access to dwelling units from parking areas through a common doorway.

In the 1978 YBC EIS HUD required mitigation of exterior air quality as follows:

- No active outdoor areas such as play areas, tennis courts and swimming pools.

This measure is based on air quality calculations performed in 1978 for the YBC FEIR and HUD YBC EIS. Assumptions used in these calculations resulted in what now appears to be an overestimation of projected pollutant concentrations for outdoor areas in YBC (see full discussion, p. 171). Updated methodology and assumptions indicate that carbon monoxide standards would be exceeded only on portions of YBC blocks adjacent to the James Lick Freeway (First YBC EIR Supplement, pp. 114 - 115). Carbon monoxide concentrations elsewhere in YBC, as well as other pollutant concentrations everywhere in YBC, would not exceed standards.

Air quality impacts would be reduced through implementation of Transportation mitigation measures in VII., F.

SUGGESTED ADDITIONAL MEASURE

Shadow analyses would be performed as appropriate by developers. Necessary modifications in building siting and shape identified in the study would be implemented to reduce shading effects on proposed open areas wherever possible.

H. NOISE

APPLICABLE YBC FEIR MEASURES

The San Francisco Noise Ordinance requires that powered construction equipment, other than impact tools and equipment, regardless of age or date of acquisition, emit no more than 80 dBA when measured at a distance of 100 ft., or an equivalent sound level at some other convenient distance (a noise level from a single noise source drops by 6 dBA with every doubling of distance). Impact tools and equipment must have intake and exhaust mufflers recommended by the manufacturers and approved by the Director of Public Works as best providing maximum noise attenuation. The San Francisco Noise Ordinance requires a special permit for construction between 8:00 p.m. and 7:00 a.m.

The Redevelopment Agency would consider implementing the following post-construction site planning noise mitigations:

- Setting back housing from the major streets.
- Orienting housing away from noise sources, with courtyard and balcony areas screened from the noise by the building.
- Using noise barriers such as walls.
- Placing bedrooms as far as possible from exterior noise sources.

SUGGESTED ADDITIONAL MEASURES

The San Francisco Redevelopment Agency would ensure that residential and hotel uses incorporate necessary noise insulation features in accordance with the requirements of the California Noise-Insulation Standards (Title 25, Chapter 1, Subchapter 1, Article 4, of the California Administrative Code).

Residential, cultural, office and retail/commercial uses in areas exceeding maximum "satisfactory" noise level guidelines specified by Transportation Noise Element of the Comprehensive Plan of San Francisco (San Francisco Department of City Planning, August 1974) would receive a detailed analysis of noise reduction requirements and have needed noise insulation features included in their design. These features may include sound-rated glass windows, air-conditioning, and tight building construction. All exterior traffic noise levels in YBC can be reduced to acceptable interior noise levels (about 45 dBA Ldn or CNEL) through appropriate building design.

Should housing be constructed on CB-2, mitigation measures in addition to those required under State Noise Insulation Standards and City Noise / Land Use compatibility guidelines would be necessary to reduce the effects of peak noises from activities on CB-2. It is likely that noise-insulating materials capable of a 40 - 45 dBA reduction of exterior noise would be needed. Masonry construction and installation of sound-rated, double-pane glazed glass in gasketed windows can reduce outside noise by up to 60 dBA. (Charles M. Salter, PE, consultant in acoustics for Olympia & York, personal interview, December 3, 1981.) The Redevelopment Agency would ensure that the developer incorporates appropriate noise insulation in CB-2 housing to reduce exterior noise levels by up to 40-45 dBA.

Should an amphitheatre or other outdoor performance area be provided on CB-2, the Redevelopment Agency would require the Central Blocks developer to perform an acoustical analysis to develop a design and placement which would have minimal, if any, noise effects on Woolf House residents and residents of all other housing proposed for or existing in YBC. Necessary amphitheatre or outdoor performance area design modifications would be implemented to minimize effects of amplified sound on Woolf House and other residents.

I. RESOURCE USE

ENERGY

APPLICABLE YBC FEIR MEASURES

The Redevelopment Agency would encourage the use of a total energy system for development of all new buildings. Because several major structures would be designed and built in the same area at about the same time, an exceptional opportunity exists to incorporate a total energy system into the design (see Section VII. I., YBC FEIR, pp. 498 - 499).

SUGGESTED ADDITIONAL MEASURES

The San Francisco Redevelopment Agency would consider developing design criteria for all new buildings to preclude development from significantly shading other YBC building sites or sites outside the redevelopment area (shading would reduce the availability of sunlight for use as solar energy). The Agency would review each building design proposal to ensure that it would conform to these criteria.

The Redevelopment Agency would develop criteria for use in the design of each development to minimize the avoidable, unnecessary and/or wasteful use of nonrenewable energy and to encourage the use of renewable energy. The Agency would review each building design to ensure that it would conform to all criteria. See Appendix F, p. 265 for a sample list of such criteria.

WATER

APPLICABLE YBC FEIR MEASURES

The Redevelopment Agency would require the use of low-flow toilets, urinals, taps, and showerheads to reduce water consumption. Convention Center engineers have incorporated this measure into the convention center design.

The Redevelopment Agency has agreed to use a water-efficient form of irrigation, such as drip irrigation, and drought-resistant landscape materials in the open space areas to reduce irrigation. Convention Center engineers have incorporated this measure into the convention center design.

SUGGESTED ADDITIONAL MEASURE

The Redevelopment Agency would require developers to recycle the water used in all decorative fountains.

J. GEOLOGY - SEISMOLOGY

APPLICABLE YBC FEIR MEASURES

Buildings would be designed in conformance with the San Francisco Building Code, Article 23, Sections 2314A to K to withstand damage resulting from the ground motions which might occur during the maximum probable earthquake. For buildings which are six stories and higher, the anticipated interaction between the site and the structural frame during a major earthquake must be considered in the design. The San Francisco Bureau of Building Inspection requires that building designs meet these criteria.

To insure adequate foundation support for proposed new structures, a licensed soils engineer would be retained to investigate the site and prepare recommendations based on current soils engineering practice as required by the Seismic Safety Element of the San Francisco Comprehensive Plan. All buildings would be designed in accordance with the soils engineer's recommendations.

Periodic checks of structures in and adjacent to the site could be conducted by the San Francisco Bureau of Building Inspection to determine if settlement were occurring in areas subject to potential subsidence and to differential settlement. Building inspection is conducted ordinarily only after a complaint has been filed with the Bureau of Building Inspection.

VII. Mitigation Measures

All buildings would be designed and positioned in conformity with the policies of the San Francisco Community Safety Plan. High-rise buildings would be designed or positioned to minimize the fall of debris and glass onto sidewalks, streets or other areas where people are likely to gather. New office towers would be set back from the street above the second story of the structure (YBC FEIR, p. 501).

Erodible, unconsolidated geologic materials exposed during construction would be protected from wind erosion. Clays and silt might be a source of dust in the area. The ground surface could be wetted down daily with reclaimed water.

SUGGESTED ADDITIONAL MEASURE

The Redevelopment Agency would consider requiring each developer of a high-rise structure to prepare an evacuation and emergency response plan in consultation with Mayor's Office of Emergency Services. This would insure coordination between the City's emergency planning activities and the developer's plans as well as provide for building occupants in the event of an emergency. The developer's plans would be reviewed and approved by the Office of Emergency Services before issuance by the Department of Public Works of final building permits. The appropriate plan would be prominently posted in each high-rise building to be constructed.

K. HYDROLOGY

APPLICABLE YBC FEIR MEASURES

If in the judgment of the City Engineer unacceptable subsidence occurs during the construction, the Redevelopment Agency would require that the developer initiate groundwater recharge to halt the settlement.

Groundwater pumped from the site would be filtered, if this is found necessary, to prevent sediment from entering the sewer system.

L. ECOLOGY

APPLICABLE YBC FEIR MEASURE

The Redevelopment Agency would require the developers to use vegetation native to Northern California for landscaping, to the extent feasible.

APPLICABLE FIRST YBC EIR SUPPLEMENT MEASURE

Rat control efforts may be needed temporarily during construction, if the abandoned sewer line in Stevenson St. are exposed. The Department of Public Health would be responsible for implementing this measure.

**VIII. UNAVOIDABLE SIGNIFICANT
ENVIRONMENTAL EFFECTS**

VIII. UNAVOIDABLE SIGNIFICANT ENVIRONMENTAL EFFECTS

The unavoidable significant environmental effects of implementation of the Main Program and its variants are generally within the limits described in the YBC FEIR, pp. 511-516 and in the First YBC EIR Supplement, p. 86. Those instances where the effects would differ from or exceed those of the four YBC FEIR alternatives are discussed below:

Land Use and Social Characteristics: Hotel uses (2,200 rooms) and cultural uses (345,000 sq. ft.) would be provided under the Main Program and variants. To a greater extent than any of the YBC FEIR alternatives, the Main Program would make YBC a day-and-night visitor activity center extending from Market Street to the Convention Center.

More market-rate dwelling units (a total of 1,970 units) would be provided under the Main Program and variants than under any of the YBC FEIR alternatives. The greatest number of market-rate units proposed in the YBC FEIR is 1,000 (Alternative C). The resulting ratio of market-rate to subsidized dwelling units for the Main Program is more than 2 to 1. A mixed-income population would reside in YBC; this population would consist of more middle- and upper-income residents and fewer low-income residents than under the YBC FEIR alternatives.

The Main Program and its variants, as well as any of the YBC FEIR alternatives, would contribute to improving the image of the South of Market area as a commercial and/or residential address. This could cause the indirect displacement of lower-income groups living west of YBC and east of Sixth Street, who may not be able to compete in the residential and retail-commercial markets with more affluent groups attracted to the area.

Urban Design And Visual Aspects: The GSA Building at 49 Fourth Street (CB-1) would be demolished. This is addressed in the First YBC EIR Supplement, p. 86.

Community Services: Housing units and hotel rooms have a greater water demand per square foot than do any other uses. Because the Main Program and its variants include more of these uses than do any of the YBC FEIR alternatives, the water demand and sewage generation for the Main Program and its variants would be roughly 25% greater than that for Alternative D, which had the highest demand of the YBC FEIR alternatives. Since the City's wastewater treatment plants are currently at wet-weather capacity, the Main Program would be an additional contribution to overflows into the Bay until completion of the City's wastewater management system.

Transportation: Congestion would occur on sidewalks and on the pedestrian plazas during peak hours when the convention center is in use. The increased pedestrian demand for crosswalk time would cause congestion at street corners. Restricted sidewalk widths could result from improper placement of sidewalk furniture and street trees. Sidewalk widening could be necessary.

Certain routes/transit agencies would approach or exceed capacity during peak hours due to cumulative demand and YBC Main Program and variant demand.

Deteriorating levels of operation (to Level of Service D) would be caused by increases in traffic from cumulative and YBC Main Program and variant development. Increases in pedestrian volumes in crosswalks would cause further deterioration in intersection operation.

The YBC Main Program and its variants would not provide sufficient parking spaces to meet both YBC and cumulative long-term demand. Provision of any parking in the Downtown Core would not be in conformity with portions of the Transportation Element of the Comprehensive Plan.

A localized deficiency of freight loading spaces would occur on five blocks under the Main Program and its variants. Tour/charter buses loading and unloading at CB-1 would cause congestion nearby. Project plans are currently

VIII. Unavoidable Significant Environmental Effects

not detailed enough to assess actual impacts. Garage, freight loading, and tour/charter bus access to off-street areas in YBC would adversely affect sidewalk and street operations in the area. Areas most affected would be Mission (transit preferential lanes), Howard (convention center entry drive), Third and Fourth Sts.

Climate and Air Quality: High-rise buildings on CB-1 could shade open spaces proposed for CB-1 much of the time.

Hydrology: The construction of an underground parking garage on CB-2 under the Main Program and its variants would require more and deeper excavation for that block than anticipated for any of the YBC FEIR alternatives. This would result in more dewatering of YBC during construction, and possible greater subsidence in nearby areas.

**IX. SHORT-TERM vs. LONG-TERM
IMPLICATIONS**

IX. SHORT-TERM VS. LONG-TERM IMPLICATIONS

The short-term and long-term effects of implementation of the Main Program would be similar to those evaluated for the four alternatives in Section IX, pp. 516-517a in the YBC FEIR. The YBC FEIR identifies the only short-term effects to be those associated with construction; long-term effects are those associated with operations following development. Long-term effects include: a commitment by the City to provide necessary services, the reinforcement of the existing Downtown San Francisco commercial activity center, the preservation of certain historic buildings, and the provision for growth where land has been cleared. Long-term environmental effects include: increased vehicle trips in the area, causing increased congestion; and increased demands for natural gas and electricity, which would consume dwindling supplies of basic energy sources. In addition, the convention center, as well as the cultural and hotel uses proposed under the Main Program, would make YBC a focus of visitor activity.

**X. IRREVERSIBLE ENVIRONMENTAL
CHANGES**

X. IRREVERSIBLE ENVIRONMENTAL CHANGES

Irreversible environmental changes resulting from implementation of the Main Program would not differ from those resulting from development on the site under the four YBC FEIR alternatives. The one exception would be the demolition of the GSA Bldg. at 49 Fourth St. and its replacement by new construction; this is addressed in the First YBC EIR Supplement. Section X, pp. 518-518a of the YBC FEIR contains a detailed discussion of irreversible changes. For the Main Program and the YBC FEIR alternatives these changes include: the re-commitment of YBC land to urban uses; the conversion of the area into a daytime and nighttime activity center; the demolition of some historic, but substandard, structures; and the consumption of nonrenewable resources such as energy and materials used in construction and the land itself.

XI. GROWTH INDUCING IMPACT

XI. GROWTH INDUCING IMPACT

The growth inducing potential of the four YBC FEIR alternatives is discussed in Section XI., YBC FEIR, pp. 519-520c. The growth inducing impacts of the proposed Main Program would generally be of the same scale and type as those identified for the four YBC FEIR alternatives. The Main Program would attract more workers residing outside San Francisco than would Alternatives B or C and fewer such workers than would A or D. The Main Program would increase the resident population in YBC to a greater extent than would any alternative. The inclusion of more cultural and entertainment facilities, possibly including a major museum on EB-2, would enhance the importance and function of the YBC area as a regional cultural center. Office, retail, and downtown support uses (about equal to that proposed in Alternative C and less than in Alternatives B, A, or D) would require transportation and other public services and housing in YBC, San Francisco and the Bay Area. As with Alternatives C and D spending by YBC employees and residents would increase local and regional economic activity; this effect would be increased in the Main Program and Alternatives A and B because the convention center would draw tourists attending conventions to the area.

The Main Program would generate about 60,000 new direct and indirect jobs. This estimate falls in the middle of employment estimates for the four alternatives, as follows:

Alternative D:	107,400
Alternative A:	93,100
Main Program :	60,000
Alternative B:	56,900
Alternative C:	37,400

Growth impacts within the City of San Francisco and within the Bay Area outside San Francisco that would be directly associated with YBC activity are described in Section XI., YBC FEIR, pp. 520-520c. YBC would also play a

role in the on-going evolution of the South-of-Market area. (These effects are discussed in A. Land Use, pp. 53 - 55 and pp. 109 - 115, and in C. Social Characteristics, pp. 67 - 71 and pp. 125 - 128). It is likely that developing retail, office, housing and other proposed uses would contribute to increased economic activity near YBC and could cause the conversion of existing commercial establishments to businesses geared to serving the new employee and resident populations, and, in the Main Program and Alternatives A and B, tourist populations, also. It is also likely that, on a broader scale, developing YBC under the Main Program or any of the YBC FEIR alternatives would contribute to existing trends which are increasing the attractiveness of property in the South of Market area. These trends might lead to the conversion of economically marginal establishments to more-profitable employee- or tourist-serving commercial uses, particularly in the blocks near Market St. Improving the image of the South of Market area as a commercial and/or residential address could also increase the likelihood of further changes in the area, including displacement of housing for lower-income groups west of YBC.

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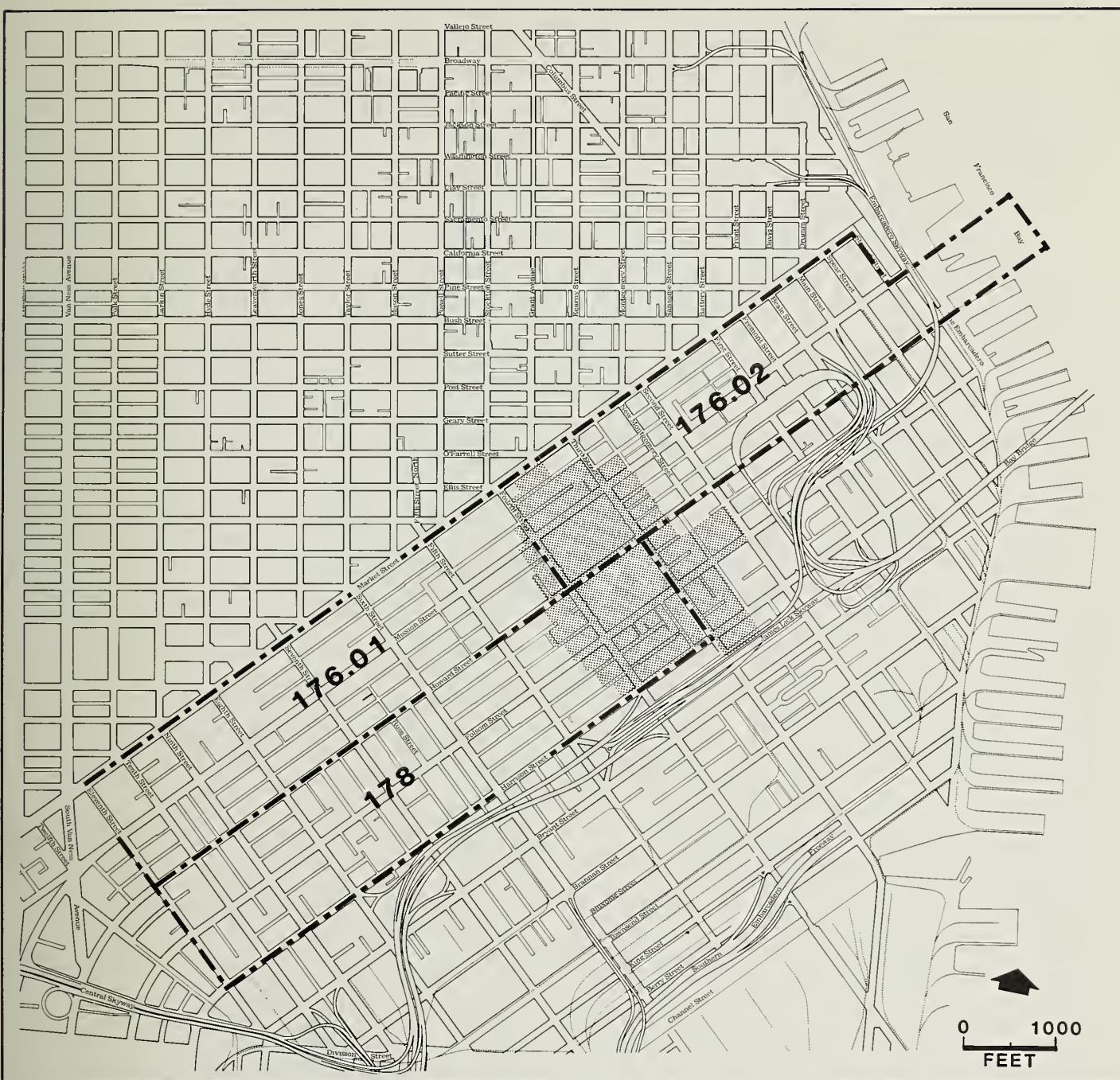
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LEGEND

--- Census Tract Boundary

FIGURE A-1:

South of Market Census Tracts

SOURCE: Environmental Science Associates, Inc.,
using information from the San Francisco Department of City Planning

XIV. APPENDICES

TABLE A-1: MAJOR OFFICE BUILDING CONSTRUCTION AND CONVERSION IN SAN FRANCISCO AS OF NOVEMBER 1, 1981

Year	Total Gross Sq. Ft. Completed	5-Year Total	5-Year Annual Average	Cumulative Total All Office Bldgs. (Gross Sq. Ft.)	All Downtown Office Bldgs.* (Net Sq. Ft.)
Pre-1960				28,145,000(a)	24,175,000(b)
1960	1,183,000				
1961	270,000				
1962	--				
1963	--				
1964	1,413,000				
		2,866,000	573,200		
1960-1964		(2,580,000)	(516,000)	30,725,000	26,754,000
1965	1,463,000				
1966	973,000				
1967	1,453,000				
1968	1,234,000				
1969	3,256,000				
		8,379,000	1,675,800		
1965-1969		(7,541,000)	(1,508,000)	38,266,000	34,295,000
1970	1,853,000				
1971	--				
1972	1,961,000				
1973	2,736,000				
1974	2,065,000				
		8,615,000	1,723,000		
1970-1974		(7,753,000)	(1,550,000)	46,019,000	42,048,000
1975	536,000				
1976	2,429,000				
1977	2,660,000				
1978	--				
1979	2,532,000				
		8,157,000	1,631,400		

TABLE A-1: MAJOR OFFICE BUILDING CONSTRUCTION AND CONVERSION IN SAN FRANCISCO AS OF NOVEMBER 1, 1981 (continued)

1975-1979	(7,341,000)	(1,468,000)	53,360,000	49,389,000
1980	1,284,000			
1981	3,138,000		57,340,000	53,369,000
Under Construction				
82,84	5,600,000			
1980-1984	(9,020,000)	(1,804,000)	62,380,000	48,409,000
Approved Projects	3,113,000		65,182,000	61,211,000

*Net equals 90 % of gross. Net new space is added at an increase factor of 90%, since it is assumed that space equal to 10% of a new building is demolished to make land available for the new replacement building.

(a) S.F. Downtown Zoning Study - Working Paper No. 1, January 1966, Appendix, Table 1, Part 1. For pre-1965, includes the area bounded by Vallejo, Franklin, Central Skyway, Bryant and Embarcadero. Also includes 1/3 of mixed use retail/office. For post-1984, includes the entire city.

(b) Gross Floor Space for downtown offices are included for the following funtional areas: Financial, Retail, Hotel, Jackson Square, Golden Gateway, Civic Center, South of Market, and Outer Market Street as defined in the 1/66 report. For post 1964, the entire area east of Franklin is included.

SOURCE: Department of City Planning

TABLE A-2: SOCIAL SERVICES IN THE SOUTH OF MARKET AREA

<u>Agency</u>	<u>Type of Service</u>	<u>Address</u>
American Association for Retired Persons	Community Information	5-3rd St.
Gray Panthers	Community Information	944 Market St.
Salvation Army	Community Information Senior Day Care, Food Program Legal Information	360 4th St.
S. F. Commission on Aging	Community Information	1095 Market St.
Quality Care Nursing Services	In Home Care	760 Market St.
Remedy Home Health Services Inc.	In Home Care	965 Mission St.
Temp. Positions Home Care	In Home Care	960 Market St.
Ozaram Reception Center	Alcoholism, Crisis Intervention & Day Treatment	1175 Howard St.
Salvation Army Harbor Light Center	Vocational Rehabilitation Alcoholism Counseling, Emergency Assistance, Detoxification	1275 Harrison St.
Salvation Army Detoxification Center	Detoxification	1255 Harrison St.
New Start Center	Alcoholism Counseling	245 Harriet St.
Oliver House	Alcoholism Counseling, Residential Care	80 9th St.
South of Market Health Center	Health Services, Food	551 Minna St.
AA for Senior Citizens St.	Health Services	380 Clementina
Institute for Child Resources	Child Protection Information	812 Howard St.
Children's Rights Group	Day Care Information	613 Mission

TABLE A-2: SOCIAL SERVICES IN THE SOUTH OF MARKET AREA (continued)

Frank McCoppen Nursery School	Full Time Children's Center	651 6th St.
<u>Agency</u>	<u>Type of Service</u>	<u>Address</u>
Bessie Carmichael Pre-Kindergarten Center	Day Care	55 Sherman St.
St. Patricks Family Center	Day Care	366 Clementina
Head Start Central City Office	Part Time Nursery School	360 5th St.
Big Brothers Incorporated	Youth Center	693 Mission St.
Canon Kip Community House	Youth Center, Meals Program, community outreach, transportation services	705 Natoma St.
Filipino Youth Coordinating Committee	Youth Organization	944 Market St.
St. Patrick's Youth Center	Youth Center	366 Clementina
Lifeline Mission of S.F. Inc.	Emergency Meals, Shelter Clothing/Personal Items	917 Folsom St.
S.F. Gospel Mission	Shelter, Clothing, Personal Items	219 6th St.
S.F. Food Bank	Emergency Food	944 Market St.
Alexis Apartments	Meals Program	390 Clementina
Silver-Crest Apartments	Meals Program	333 Shipley St.
Woolf House	Meals Program	801 Howard St.
Goodwill Industries	Vocational Rehabilitation Sheltered Employments, Inexpensive Goods	980 Howard St.
Asian/American Community Mental Service Center	Mental Health	150 8th St.
Filipino Organization Committee	Filipino Group Support	768 Natoma St.
Filipino Senior Citizen Club Inc.	Filipino Group Support	83 6th St.

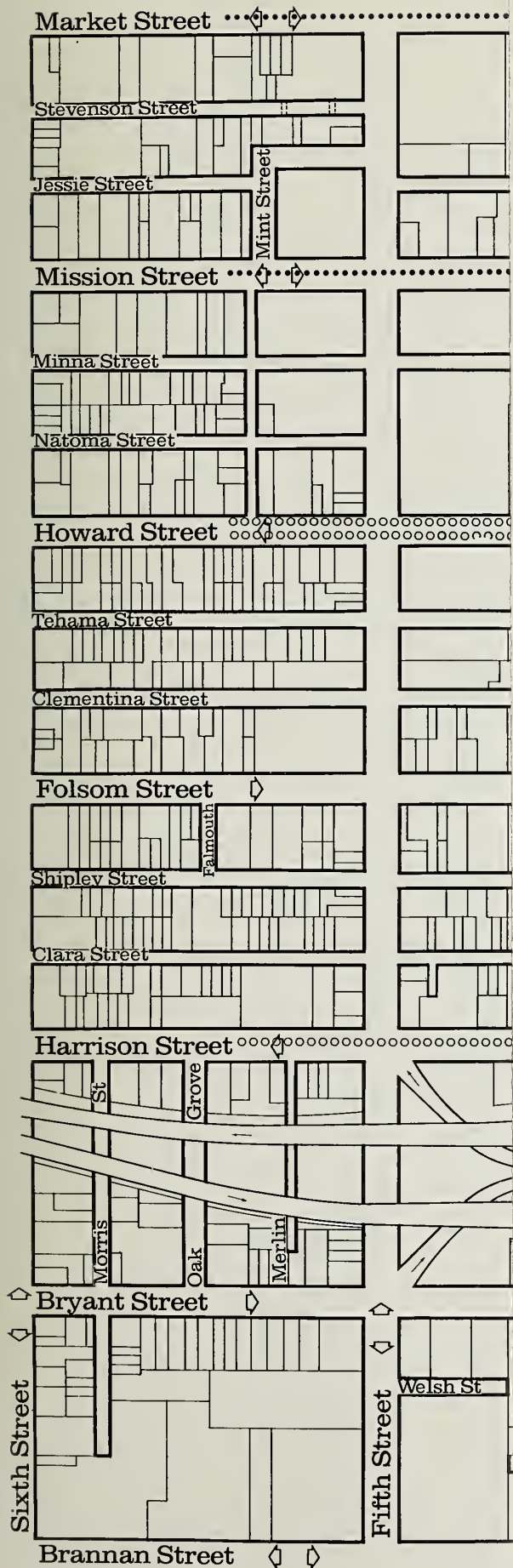
TABLE A-2: SOCIAL SERVICES IN THE SOUTH OF MARKET AREA (continued)

<u>Agency</u>	<u>Type of Service</u>	<u>Address</u>
S.F. U.S.D.-Filipino Educational Center	Educational Services	824 Harrison St.
Cal. State Dept. of Veteran's Affairs	Veteran's Services	211 Main St.
West Bay Filipino Multi-Service Corp.	Immigration Assistance	944 Market St.
EOC Neighborhood Service Systems	Information & Referral	1173 Mission St.
S.F. Dept. of Social Services	Food Stamps, Community Services, Information	1360 Mission St.
U.S. Action Region IX	Volunteer Assistance	211 Main St.
Aid to Retarded Citizens, Adult Vocational Program	Vocational Assistance	697 Harrison St.
Golden Gate Regional Center	Disabilities Services	100 Mission St.
Toolworks	Sheltered Employment	355 Fremont St.
Utility Workshop	Sheltered Employment, Vocational Rehabilitation	1118 Howard St.
S.F. Community Rehabilitation Workshop	Sheltered Employment, Vocational Rehabilitation	191 8th St.
The Iris Project	Drug Abuse Services	944 Market St.
Bay Area Addiction Research Treatment	Drug Abuse Services, Counseling	342 Harriet St.
Downtown Community College Center	Educational Services	800 Mission St.
Partners in English	Educational Services	944 Market St.
Bessie Carmichael School	Elementary School	55 Sherman St.
Golden Gate University	Law School	536 Mission St.
S.F. Police Department	Police Services	850 Bryant St.

TABLE A-2: SOCIAL SERVICES IN THE SOUTH OF MARKET AREA (continued)

<u>Agency</u>	<u>Type of Service</u>	<u>Address</u>
Apostleship of the Sea	Emergency Meals, Shelter/ Refuge	399 Fremont St.
St. Patrick's Church	Emergency Meals, Housing	756 Mission St.
Family Violence Center	Emergency Victim Service	850 Bryant St.
Western States Shelter Network	Battered Women/Child Serv.	870 Market St.
Legal Assistance for the Elderly	Legal Aid	944 Market St.
Northeast Mental Health Center #4	Geriatric Services, Mental Health Services	428 Jessie St.
S.F. Neighborhood Legal Assist.	Legal Aid	870 Market St.
Calif. State Employment Development: Casual Labor	Job Development & Training	950 Minna St.
Salvation Army Occupational Training Program	Job Development & Training	1275 Harrison St.
Employment Law Center	Fair Employment Practices	693 Mission St.
S.F. Lighthouse for the Blind	Handicapped Services	1097 Howard St.
Child Health Information and Referral	Health Service Information	693 Mission St.
S.F. Dept. of Public Health City Clinic	Health Services	250 4th St.
Big Sisters Inc.	Family Development Services	149 9th St.
Divorce Center	Divorce Information	870 Market St.
Senior Escort Outreach Program	Transportation Services	814 Mission St.

SOURCE: San Francisco, Department of Social Services, Resource Directory 1981.



YERBA BUENA CENTER SECOND SUPPLEMENT

LEGEND

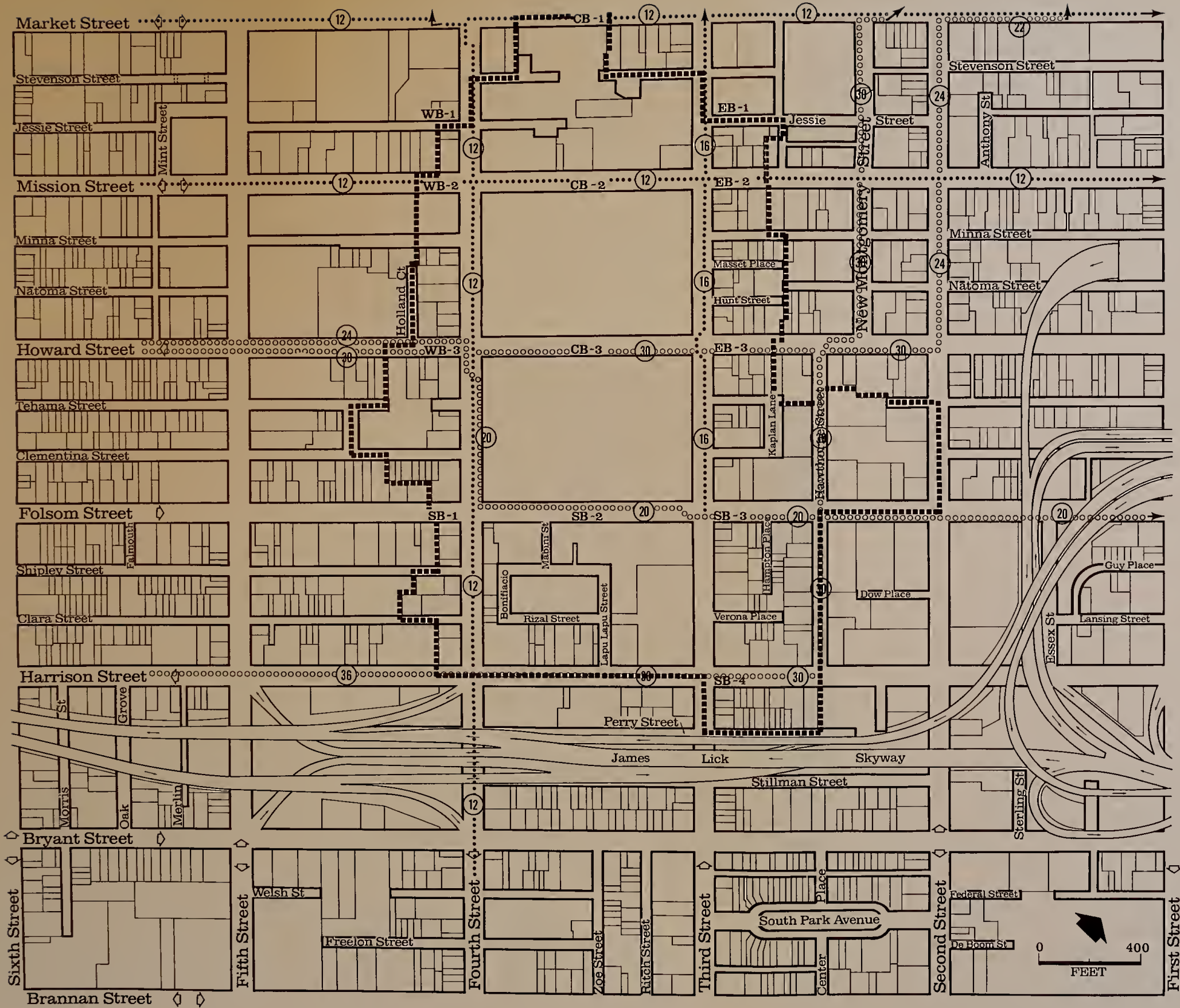
- Feeder Water Main (less than 20 inches)
- oooooo Feeder Water Main (greater than 20 inches)
- (12) Diameter of Main in Inches

----- Redevelopment Area Boundary

FIGURE B-1:
Water Main System

SOURCE:

Environmental Science Associates, Inc., using updated
information from the YBC FEIR



YERBA BUENA CENTER SECOND SUPPLEMENT

LEGEND

- Feeder Water Main (less than 20 inches)
- oooooo Feeder Water Main (greater than 20 inches)
- (12) Diameter of Main in Inches

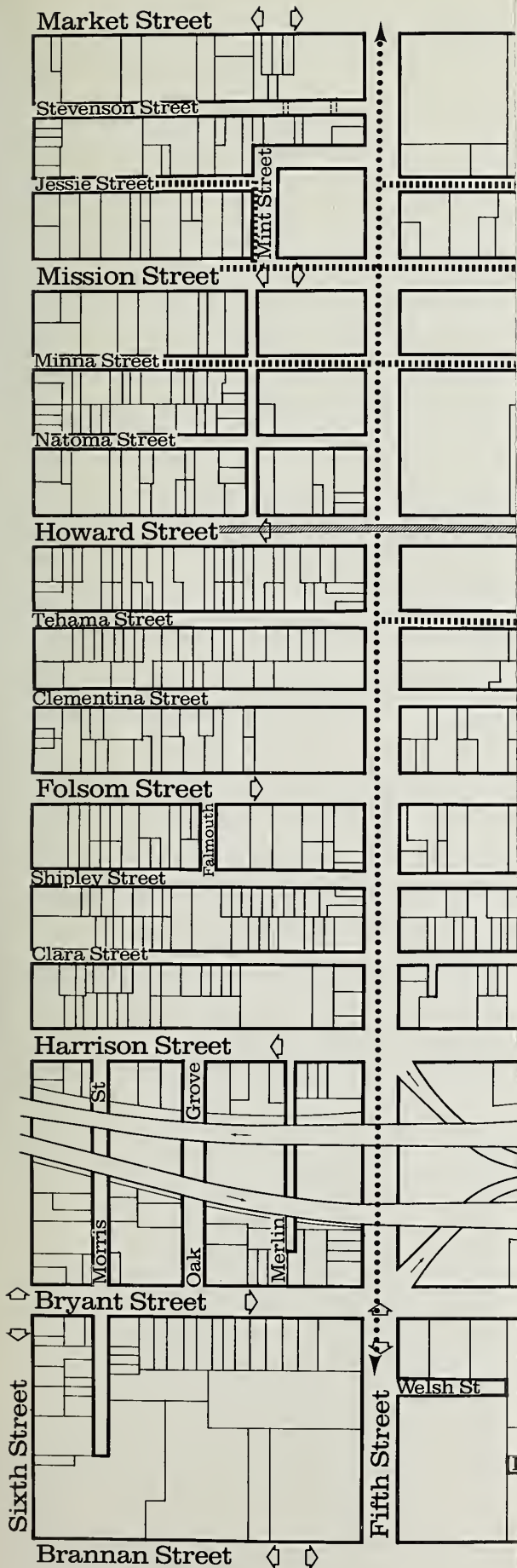
..... Redevelopment Area Boundary

FIGURE B-1:

Water Main System





SOURCE:

Environmental Science Associates, Inc., using updated information from the YBC FEIR



YERBA BUENA CENTER SECOND SUPPLEMENT

LEGEND

-  North Point Main, concrete, 8' diameter
-  Other concrete mains
-  Brick mains, 3' x 5'
-  Mains under abandoned streets


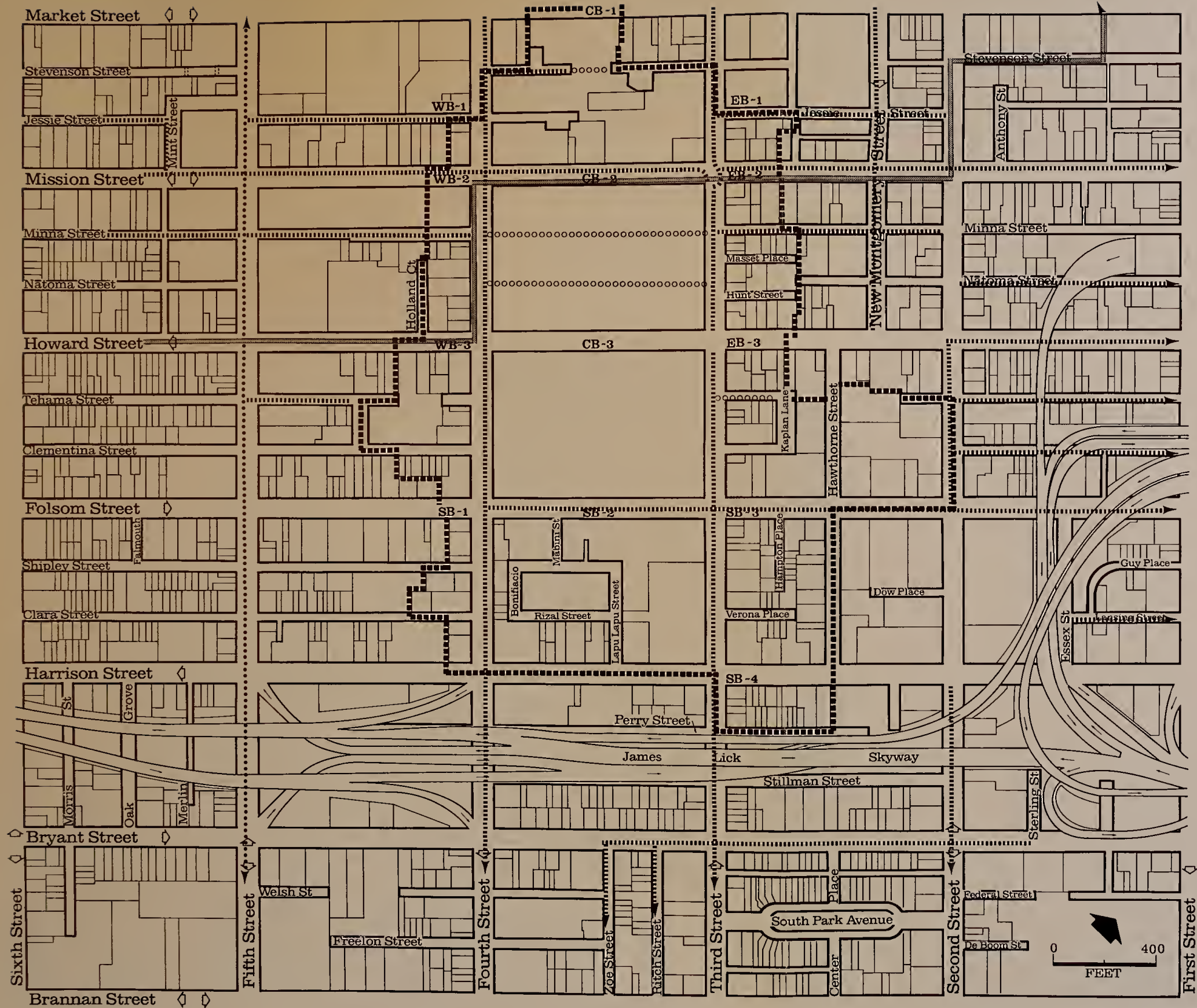
 Redevelopment Area Boundary

FIGURE B-2:
Sewerage Lines

SOURCE:

Environmental Science Associates, Inc., using
information from the YBC FEIR



YERBA BUENA CENTER SECOND SUPPLEMENT

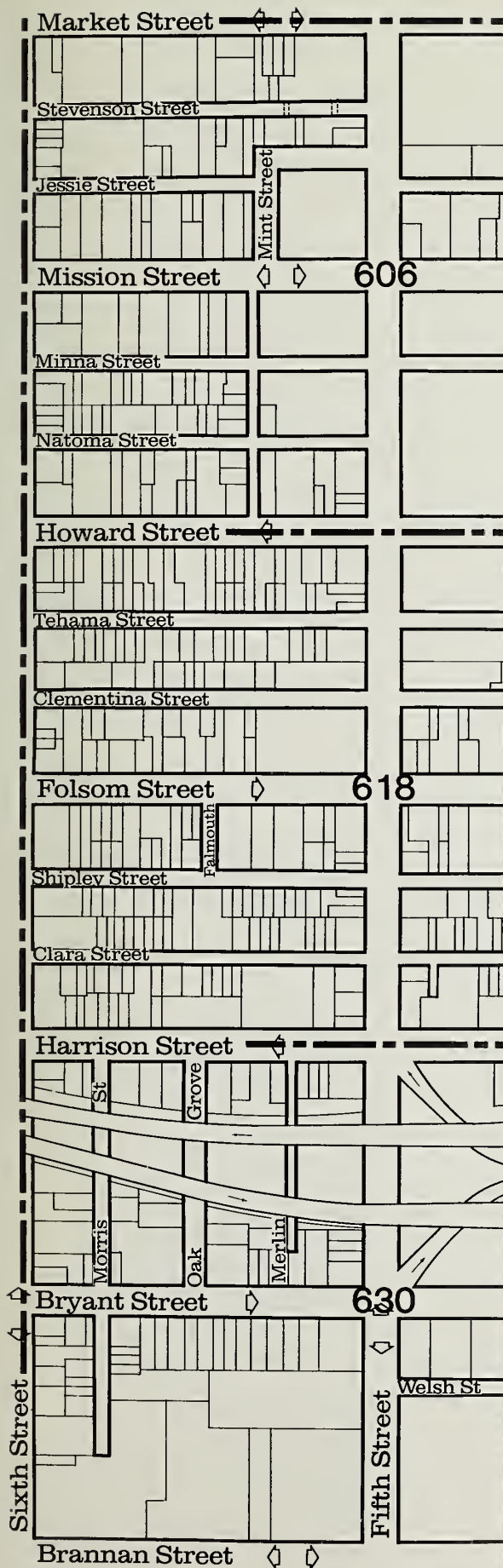
LEGEND

- North Point Main, concrete, 8' diameter
- Other concrete mains
- Brick mains, 3' x 5'
- Mains under abandoned streets

Redevelopment Area Boundary

FIGURE B-2:
Sewerage Lines

SOURCE:
Environmental Science Associates, Inc., using
Information from the YBC FEIR



YERBA BUENA CENTER SECOND SUPPLEMENT

LEGEND

— Statistical Reporting Area Boundaries

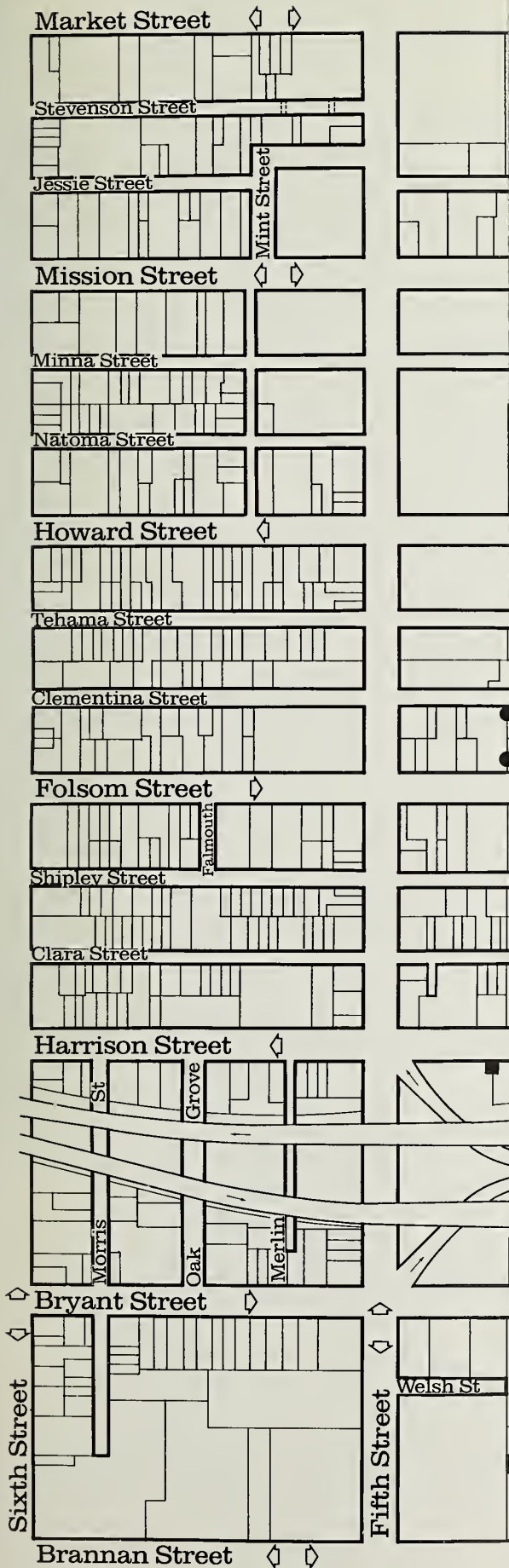
..... Redevelopment Area Boundary

FIGURE B-3:

San Francisco Police Department
Statistical Reporting Areas

SOURCE:

Environmental Science Associates, Inc., using information
provided by the San Francisco Police Department



YERBA BUENA CENTER SECOND SUPPLEMENT

LEGEND

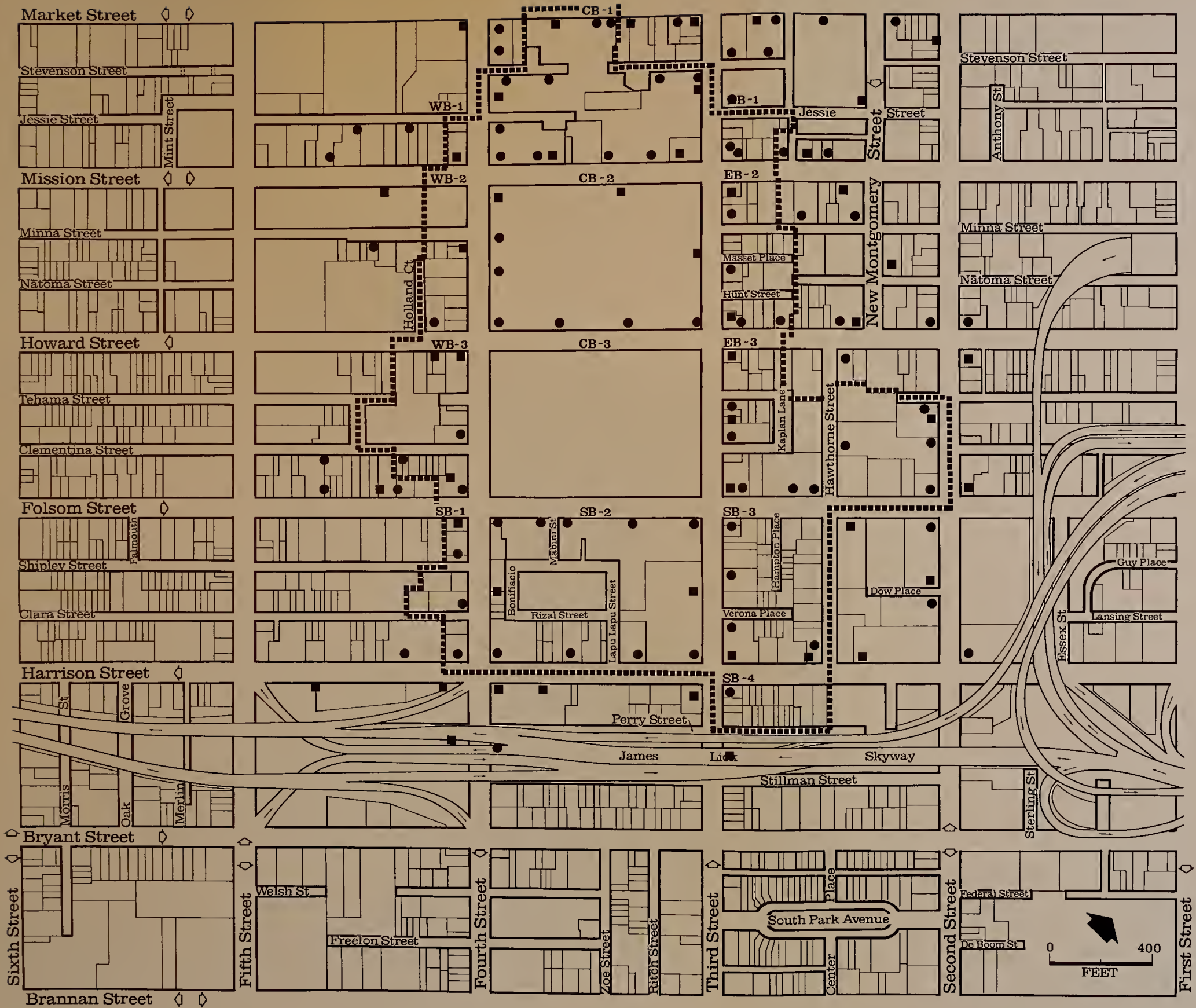
- High Pressure Hydrant
- Low Pressure Hydrant

..... Redevelopment Area Boundary

FIGURE B-4:
Locations of Fire Hydrants in YBC

SOURCE:

Environmental Science Associates, Inc., using information
provided by the San Francisco Fire Department



YERBA BUENA CENTER SECOND SUPPLEMENT

LEGEND

- High Pressure Hydrant
- Low Pressure Hydrant

----- Redevelopment Area Boundary

FIGURE B-4:
Locations of Fire Hydrants in YBC

SOURCE:
Environmental Science Associates, Inc., using information
provided by the San Francisco Fire Department

TABLE B-1: CALCULATIONS FOR WASTEWATER GENERATION BY USE IN YERBA BUENA CENTER: 1988 (Main Program and YBC FEIR Alternatives)

TYPE OF LAND USE	ESTIMATING FACTORS ¹	MAIN PROGRAM		ALTERNATIVE A		ALTERNATIVE B		ALTERNATIVE C ¹¹		ALTERNATIVE D ¹¹	
		Unit	Gallons/Day	Unit	Gallons/Day	Unit	Gallons/Day	Unit	Gallons/Day	Unit	Gallons/Day
Commercial Entertainment	100 gal/1000 sq. ft./day	255,000	25,500	400,000	40,000	--	--	--	--	--	--
Convention Facility:											
Visitors	5 gal/visitor/day ³	2,700v/day ⁴	13,500	2,700v/day ⁴	13,500	2,700v/day ⁴	13,500	--	--	--	--
Employees	20 gal/employee/day	800 emp/day	16,000	800emp/day	16,000	800emp/day	16,000	--	--	--	--
Community Service (Institutional)	1,000 students (during 1-hr. period) X 35 gpcd ⁵ and other, 100 gal/1000 sq.ft./day	119,600	35,035	--	--	--	--	--	--	--	--
Cultural	100 gal/1000 sq.ft./day	340,000	34,000	--	--	--	--	--	--	--	--
Downtown Support Service	100 gal/1000 sq.ft./day	10,500	1,050	--	--	--	--	--	--	6,336,584	633,700
Exhibit and Ballroom	100 gal/1000 sq. ft./day	100,000	10,000								
Hotel Rooms	200 gal/room/day ⁶	2,200 rooms	440,000	700 rooms	140,000	--	--	--	--	--	--
Light Industry	100 gal/1000 sq.ft./day	137,300	13,730	1,077,450	107,700	342,875	34,300	359,378	35,900	1,551,704	155,200
Market Rate Dwelling Units	200 gal/OU/day ⁶	1,970 OUs	394,000	50 OUs	10,000	650 OUs	130,000	1,000 OUs	200,000	--	--
Office	125 gal/1000 sq.ft./day	4,072,000	509,000	6,214,450	776,750	2,631,625	329,000	1,302,300	195,300 ⁷	3,317,823	497,700 ⁷
Retail Commercial	200 gal/1000 sq.ft./day	496,900	99,400	676,550	135,400	341,075					
Rec/Entertainment Park	5 gal/visitor/day	--	--	--	--	17,800v/day ⁸	89,000	--	--	--	--
Subsidized Dwelling Units	200 gal/OU/day ⁶	900 OUs	180,000	888 OUs	177,600	1,188 OUs	237,600	1,188 OUs	237,600	888 OUs	177,600
TOTAL GALLONS PER DAY (mgd): ⁹			1.77 mgd		1.82 mgd		0.85 mgd		0.67 mgd		1.48 mgd

¹ Unless otherwise noted, taken from: Brown and Caldwell, Consulting Engineers, Report on Wastewater Loading from Selected Redevelopment Areas, February 1972.

² Square feet unless otherwise noted.

³ Estimating factor of 5 gallons per visitor per day provided by convention center architects.

⁴ High annual attendance figure of 985,000 visitors based on total annual 1976 attendance of 973,000 at similar Los Angeles Convention Center and estimated convention use only attendance figure of 475,000 in 1988 provided by R. Sullivan, General Manager, San Francisco Visitors and Convention Bureau, telephone communication, August 22, 1977.

⁵ Joint Committee of the American Society of Civil Engineers and the Water Pollution Control Federation, Design and Construction of Sanitary and Storm Sewers, 1969.

⁶ Metcalf and Eddy, Wastewater Engineering: Collection, Treatment, Disposal, McGraw-Hill, 1972.

⁷ Combined office-retail commercial computed at 150 gal/1,000 sq. ft./day.

⁸ Based on high annual recreation entertainment park attendance of 6,500,000 people estimated by R. Gryziec, letter dated July 26, 1977.

⁹ Million gallons per day.

¹⁰ Dwelling units shown for Alternatives have been corrected to 278 fewer than in YBC FEIR.

¹¹ Alternatives C and D do not include existing convention center.

SOURCE: Environmental Science Associates, Inc.

TABLE B-2: CALCULATIONS FOR WASTEWATER GENERATION BY USE IN YBC: 1988 (Main Program and Variants)

TYPE OF LAND USE	ESTIMATING FACTORS ¹	MAIN PROGRAM WITH VARIANTS									
		MAIN PROGRAM		A. Central Block 1		B. Central Block 1		C. Central Block 2		D. Eastern Block 2	
		Unit (Sq. Ft.) ²	Gallons/ Day	Unit (Sq. Ft.) ²	Gallons/ Day	Unit (Sq. Ft.) ²	Gallons/ Day	Unit (Sq. Ft.) ²	Gallons/ Day	Unit (Sq. Ft.) ²	Gallons/ Day
Commercial Entertainment	100 gal/1000 sq. ft./day	255,000	25,500	255,000	25,500	255,000	25,500	255,000	25,500	255,000	25,500
Convention Facility:											
Visitors	5 gal/visitor/day ³	2,700/day ⁴	13,500	2,700/day ⁴	13,500	2,700/day ⁴	13,500	2,700/day ⁴	13,500	2,700/day ⁴	13,500
Employees	20 gal/employee/day	800/day	16,000	800/day	16,000	800/day	16,000	800/day	16,000	800/day	16,000
Community Service (Institutional)	1,000 students (during 1 hr. period) X 35 gpcd ⁵ and other, 100 gal/1000 sq. ft./day	119,600	35,035	119,600	35,035	119,600	35,035	119,600	35,035	119,600	35,035
Cultural	100 gal/1000 sq. ft./day	340,000	34,000	340,000	34,000	340,000	34,000	340,000	34,000	340,000	34,000
Downtown Support Service	100 gal/1000 sq. ft./day	10,500	1,050	10,500	1,050	10,500	1,050	10,500	1,050	10,500	1,050
Exhibit and Ballrooms	100 gal/1000 sq. ft./day	100,000	10,000	100,000	10,000	100,000	10,000	100,000	10,000	100,000	10,000
Hotel Rooms	200 gal/room/day ⁶	2,200 rooms	440,000	2,200 rooms	440,000	2,200 rooms	440,000	2,200 rooms	440,000	2,200 rooms	440,000
Light Industry	100 gal/1000 sq. ft./day	137,300	13,730	137,300	13,730	137,300	13,730	137,300	13,730	137,300	13,730
Market Rate Dwelling Units	200 gal/DU/day ⁶	1,970 DUs	394,000	1,670 DUs	334,000	1,470 DUs	294,000	2,270 DUs	454,000	2,370 DUs	474,000
Office	125 gal/1000 sq. ft./day	4,072,000	509,000	4,472,000	559,000	4,072,000	509,000	4,072,000	509,000	3,672,000	459,000
Retail Commercial	200 gal/1000 sq. ft./day	496,900	99,400	586,900	117,400	496,900	99,400	496,900	99,400	496,900	99,400
Subsidized Dwelling Units	200 gal/DU/day ⁶	900 DUs	180,000	900 DUs	180,000	900 DUs	180,000	900 DUs	180,000	900 DUs	180,000
TOTAL GALLONS PER DAY (mgd): ⁷			1.77 mgd	1.77 mgd	1.77 mgd	1.67 mgd	1.83 mgd	1.80 mgd			

¹ Unless otherwise noted, taken from: Brown and Caldwell, Consulting Engineers, Report on Wastewater Loading from Selected Redevelopment Areas, February 1972.

² Square feet unless otherwise noted.

³ Estimating factor of 5 gallons per visitor per day provided by convention center architects.

⁴ High annual attendance figure of 985,000 visitors based on total annual 1976 attendance of 973,000 at similar Los Angeles Convention Center and estimated convention use only attendance figure of 475,000 in 1988 provided by R. Sullivan, General Manager, San Francisco Visitors and Convention Bureau, telephone communication, August 22, 1977.

⁵ Joint Committee of the American Society of Civil Engineers and the Water Pollution Control Federation, Design and Construction of Sanitary and Storm Sewers, 1969.

⁶ McGraw-Hill, Wastewater Engineering: Collection, Treatment, Disposal, McGraw-Hill, 1972.

⁷ Million gallons per day.

SOURCE: Environmental Science Associates, Inc.

TABLE B-3: CALCULATIONS FOR SOLID WASTE GENERATION BY USE IN YBC: 1908 (Main Program and YBC FEIR Alternatives)

TYPE OF LAND USE	ESTIMATING FACTORS ¹	MAIN PROGRAM		ALTERNATIVE A Unit ² LBS/day	ALTERNATIVE B Unit ² LBS/day	ALTERNATIVE C ^B Unit ² LBS/day	ALTERNATIVE D ^B Unit ² LBS/day
		Unit (Sq. Ft.) ²	Pounds/ Day				
Commercial Entertainment	1 lb/100 sq. ft./day	255,000	2,550	400,000	4,000	--	--
Convention Facility	1 lb/100 sq. ft./day	750,000	7,500	370,000	3,700	--	--
Community Service (Institutional)	1 lb/100 sq. ft./day	119,600	1,200	--	--	--	--
Cultural	1 lb/100 sq. ft./day	340,000	3,400	--	--	--	--
Downtown Support Service	1 lb/100 sq. ft./day	10,500	1,050	--	--	--	6,336,584 63,350
Exhibit and Ballroom	1 lb/100 sq. ft./day	100,000	1,000	--	--	--	--
Hotel Rooms	2.4 lb/room/day	2,200 rooms	5,300	700 rooms	1,700	--	--
Light Industry	2 lb/100 sq. ft./day	137,300	2,750	1,077,450	21,550	342,875	6,850
Market Rate Dwelling Units	2.4/lbs/capita/day x 2.0 persons/OU ³	1,970 OUs	10,650	50 OUs	300	650 OUs	3,500
Office	1 lb/100 sq. ft./day	4,072,000	27,700	6,241,450	62,150	2,631,625	26,300
Park	0.4 lb/100 sq. ft./day ⁴	--	--	454,000	1,800	--	--
Pedestrian Concourse	0.4 lb/100 sq. ft./day ⁴	--	--	163,200	650	80,720	350
Public Parking	0.2 lb/100 sq. ft./day (1 sp = 160 sq. ft.)	2,346 sp. = 375,360 sq. ft.	750	--	700	451,600	900
Rec/Entertainment Park	0.8 lb/visitor/day ⁴	--	--	--	--	7,800v/d ⁵	14,250
Retail Commercial	1 lb/100 sq. ft./day	496,900	5,000	676,550	6,750	341,075	3,400
Subsidized Dwelling Units	2.4/lbs/capita/day x 1.15 persons/DU ⁶	900 OUs	2,500	888 OUs	2,450	1,188 OUs	3,300
TOTAL GENERATION: (pounds/day)			83,000	106,000	62,000	20,000	97,000

¹ Unless otherwise noted, taken from California Solid Waste Management Board, Technical Information Service Bulletin No. 2, Solid Waste Generation Factors in California, July 1974.

² Units in square feet unless otherwise noted.

³ Occupancy factor of 2.0 persons/OU from YBC FEIR, p. 295.

⁴ Based on estimates of solid waste generation in Union Square, provided by F. Garbarino, Office Manager, Golden Gate Scavenger Company, telephone communication, August 23, 1977

⁵ v/d = visitors per day. High recreation/entertainment park attendance figures provided by R. Gryzlec in a letter dated July 26, 1977.

⁶ Dwelling units for each Alternative are corrected to show 278 fewer than in YBC FEIR.

⁷ 1.15 persons/DU from Hotel Ramada FEIR, p. 30a.

^B Alternatives C and D do not include existing convention center.

SOURCE: Environmental Science Associates, Inc.

TABLE B-4: CALCULATIONS FOR SOLID WASTE GENERATION BY USE IN YBC: 1988 (Main Program and Variants)

TYPE OF LAND USE	ESTIMATING FACTORS ¹	MAIN PROGRAM WITH VARIANTS					
		MAIN PROGRAM		A. Central Block 1		B. Central Block 2	
		Unit (Sq. Ft.) ²	Pounds/Day	Unit (Sq. Ft.) ²	Pounds/Day	Unit (Sq. Ft.) ²	Pounds/Day
Commercial Entertainment	1 lb/100 sq. ft./day	255,000	2,550	255,000	2,550	255,000	2,550
Convention Facility	1 lb/100 sq. ft./day	750,000	7,500	750,000	7,500	750,000	7,500
Community Service (Institutional)	1 lb/100 sq. ft./day	119,600	1,200	119,600	1,200	119,600	1,200
Cultural	1 lb/100 sq. ft./day	340,000	3,400	340,000	3,400	340,000	3,400
Downtown Support Service	1 lb/100 sq. ft./day	10,500	1,050	10,500	1,050	10,500	1,050
Exhibit and Ballroom	1 lb/100 sq. ft./day	100,000	10,000	100,000	1,000	100,000	1,000
Hotel Rooms	2.4 lb/room/day	2,200 rooms	5,300	2,200 rooms	5,300	2,200 rooms	5,300
Light Industry	2 lb/100 sq. ft./day	137,300	2,750	137,300	2,750	137,300	2,750
Market Rate Dwelling Units	2.4/lbs/capita/day x 2.0 persons/DU ³	1,970 DUs	9,450	1,670 DUs	8,000	1,470 DUs	7,050
Office	1 lb/100 sq. ft./day	2,772,000	27,700	3,172,000	31,700	2,772,000	27,700
Public Parking	0.2 lb/100 sq. ft./day (1 sp = 160 sq. ft.)	2,346 sp. = 375,360 sq. ft.	750	375,360	750	375,360	750
Retail Commercial	1 lb/100 sq. ft./day	496,900	4,950	586,900	5,850	496,900	4,950
Subsidized Dwelling Units	2.4/lbs/capita/day x 1.15 persons/DU ⁴	900 DUs	2,500	900 DUs	2,500	900 DUs	2,500
TOTAL GENERATION (pounds/day)			81,500		85,600		84,100
							82,100

¹ Unless otherwise noted, taken from California Solid Waste Management Board, Technical Information Service Bulletin No. 2, Solid Waste Generation Factors in California, July 1974.

² Units in square feet unless otherwise noted.

³ Occupancy factor of 2.0 persons/DU from YBC FEIR, p. 295.

⁴ Occupancy factor of 1.15 persons per room from Hotel Ramada FEIR, p. 30a.

SOURCE: Environmental Science Associates, Inc.

Trip Generation

An estimate of the amount of travel associated with the Main Program has been forecast through a travel demand modeling process similar to the process used in the YBC FEIR. (See Appendix F, Figure F-1, p. 59 for a flow chart of the process.) The process uses a trip generation/distribution/assignment model to estimate travel on the transportation modes serving the YBC area. A complete description of the process is contained on pp. 56 and 58 of Appendix F of the YBC FEIR. Following is a brief discussion of the process used. Trip generation rates (see Table C-1, Appendix C) were applied to the non-convention center land uses in the Main Program to produce estimates of person trip-ends (pte) for a representative weekday. Peak-hour pte were classified by three trip purposes, work (75%), non-work (20%) and service (5%). Modal split percentages (see Table C-2) were applied to the aggregate peak-hour travel for each purpose to assign trips to specific modes of travel (pedestrian, transit and auto). Revised generation rates and modal split percentages were substituted for the data used in the YBC FEIR. Tables C-1 and C-2 show which data were changed from the YBC FEIR. As in the YBC FEIR, the convention center projected travel was considered unique in purpose and was assigned a separate set of destinations from the rest of the travel generated by the Main Program. The convention center has been assumed at the peak occupancy level of 24,000 persons for the weekday peak-hour traffic analysis. It is recognized that this condition would occur only a few times per year if the estimated annual attendance of up to 500,000 persons holds true. The Main Program has introduced a "cultural" category that is defined only in broad terms. The "commercial entertainment" category is similarly broadly defined. The rates used were intended to be conservative on the high side (i.e., generate more than average trips) but may be overly high for some types of land use. If the "commercial entertainment" uses were to be restaurants or cafes, the rate used would be appropriate. If the use were to be a cinema complex then the rate used may be low by 20%, depending upon peaking characteristics. If the uses were to be recreational in nature (health club, ice rink), then the rate used would be high. If the "cultural" land uses were to be museums, then the rate would most likely be high, but if the uses were more intensive along the lines of the Academy of Sciences or the Exploratorium then the rate used would be appropriate.

Travel Assignment/Modal Split

Table C-2 shows the modal split used in this analysis. The work purpose assignments have been updated based upon recent employee surveys. The non-work and service purposes modal splits are the ones used in the YBC FEIR.

TABLE C-1: TRIP GENERATION RATES FOR YBC**

<u>Land Use Category</u>	<u>Weekday Person Trip Ends/Day</u>	
	<u>YBC FEIR</u>	<u>Second Supplement</u>
Convention Center	62,500	62,500
Commercial Entertainment	50/1,000 sq. ft. GFS (Gross floor space)	50/1,000
Hotel	10.5/occupied room**	9.6/total room*
Retail	30/1,000 sq. ft. GFS	55/1,000*
Office	12/1,000 sq. ft. GFS	17.5/1,000*
Cultural		50/1,000 sq. ft. GFS*
Housing:		
Subsidized Elderly	3/D.U.	3/D.U.
Market-Rate	7/D.U.	9/D.U.*

* Indicates changed rate.

** 80% occupancy assumed.

SOURCES: YBC FEIR, Footnote 6, p. 92, Appendix F, lists the sources for the YBC FEIR trip generation rates. The changes made for this supplement are based upon more recent data contained in the following sources:

<u>USE</u>	<u>SOURCE</u>
Hotel	<u>Draft EIR Tower No. 2 San Francisco Hilton Hotel, EE 79-257 San Francisco Department of City Planning, 6 October 1980.</u>
Office	<u>Guidelines for Environmental Impact Review, Transportation Impacts, San Francisco Department of City Planning, October 1980.</u>
Market-rate housing	<u>13th Progress Report on Trip Ends Generation Research Counts, CalTrans District 4, June 1981.</u>
Retail, cultural	<u>San Diego Traffic Generations Cal Trans District 11, May 1979.</u>
	<u>Trip Generation 1979 revision, Institute of Transportation Engineers.</u>

TABLE C-2: PROJECT TRAVEL DISTRIBUTION AND MODAL SPLIT

Geographic Area	WORK TRAVEL (75% of Peak Travel)			VISIT TRAVEL (20% of Peak Travel)			SERVICE TRAVEL (5% of Peak Travel)		
	Geog. %	Mode	Mode %	Geog. %	Mode	Mode %	Geog. %	Mode	Mode %
San Francisco Dwntn/Northeast (E of Van Ness, N of Market to the Embar- cadero, S of Market to 101)	7.0	Auto Muni BART Walk	9.0 61.0 1.0 29.0	19.0	Auto Muni BART Walk	30.0 50.0 10.0 10.0	50.0	Auto	100.0
Northwest (Richmond, Marina Western Addition)	15.0	Auto Muni	31.0 69.0	17.0	Auto Muni	55.0 45.0			
Southwest (Sunset, Parkside, Ingleside, Excel- sior, Twin Peaks, and Upper Market)	13.0	Auto Muni BART	29.0 62.0 9.0	12.0	Auto Muni BART	55.0 36.0 9.0	50.0	Auto	100.0
Southeast (Potrero Hill, Bay- view, Hunters Point, East and South of 101)	5.0	Auto Muni BART	26.0 52.0 22.0	13.0	Auto Muni BART	50.0 40.0 10.0			
Peninsula (San Mateo and Santa Clara Counties)	18.0	Auto Muni BART SamT SPRR	44.0 3.0 19.0 7.0 27.0	13.0	Auto Muni BART SamT SPRR	80.0 0.0 0.0 3.0 17.0			
East Bay (Alameda and Contra Costa Counties)	30.0	Auto BART A-C	33.0 37.0 30.0	16.0	Auto BART A-C	80.0 11.0 9.0			
North Bay (Marin and Sonoma Counties)	12.0	Auto GGTB GGTF	58.0 35.0 7.0	10.0	Auto GGTB GGTF	73.0 19.0 8.0			

SOURCE: San Francisco Department of City Planning, TJKM.

Method of Capacity Analysis

The method of capacity analysis used in the YBC FEIR is essentially the same as was used in this Supplement. The basic difference is the method in which the results are presented. The capacity analysis utilized the "Critical Movement Summation" method as described in "Interim Materials on Highway Capacity," Transportation Research Circular No. 212.1/ The maximum service volume for Level of Service E was assumed as intersection capacity. A service volume is the maximum number of vehicles that can pass an intersection during a specified time period in which operating conditions are maintained corresponding to the selected and specified Level of Service. For each intersection analyzed, the existing peak-hour volume was computed and a volume-to-capacity (v/c) ratio was calculated by dividing the existing volume by the capacity at Level of Service E. Table C-3 shows pedestrian flow capacities and Table C-4 shows the vehicle lane capacities used.

In the YBC FEIR, the results of the analysis were expressed as vehicular headways with capacity being described as a "guideline headway" (see pp. 89 and 89a, Appendix F, YBC FEIR). The method used in this Supplement expresses the analysis results as volume-to-capacity (v/c) ratios. Table C-5 relates v/c ratios to Level of Service. The YBC FEIR analyzed 15-minute periods rather than hour periods. The 15-minute analysis presents more precise results than does the hour analysis used in this supplement. However, other analyses of the surrounding vicinity completed since the YBC FEIR have used the hour analysis. In an attempt to present data in a compatible format, the hour analysis has been used.

Two important changes that account for differences in the results have occurred between publication of the YBC FEIR and compilation of this supplement. The main change is alteration of the street geometrics at several of the intersections in the YBC area. Changes of this type can significantly affect the available capacity at intersections. The other change is that recent counts are essentially of the same magnitude as the 1977 counts thus invalidating the assumption of 1.8% per year vehicular traffic growth made on the YBC FEIR.

Consequently, for the 1988 projections, a nominal growth of 1.0% per year has been assumed based upon discussions with the Bureau of Traffic Engineering./2/

TABLE C-3: PEDESTRIAN FLOW

<u>Flow Regime</u>	<u>Walking Speed Choice</u>	<u>Conflicts</u>	<u>Average Flow Rate (P/F/M)*</u>
Open	Free Selection	None	0.5
Unimpeded	Some Selection	Minor	0.5-2
Impeded	Some Selection	High Indirect Interaction	2-6
Constrained	Some Restriction	Multiple	6-10
Crowded	Restricted	High Probability	10-14
Congested	All Reduced	Frequent	14-18
Jammed**	Shuffle Only	Unavoidable	

* P/F/M = Pedestrians per foot of sidewalk width per minute.

** For jammed flow, the flow rate degrades below the capacity rate of 10 P/F/M; the number of persons per square foot is greater for this regime, and hence the use of the term, "jammed."

SOURCE: Pushkarev, Boris and Jeffry M. Zupan, Urban Space for Pedestrians, Cambridge, MA. MIT Press, 1975.

TABLE C-4: VEHICULAR LEVEL OF SERVICE GUIDELINES FOR VARIOUS PEDESTRIAN VOLUME LEVELS

<u>Pedestrians Volume Level</u>	<u>Pedestrians per hour (One Sidewalk)</u>		<u>Level of Service E Maximum Lane Volume (Pedestrians per Hour)</u>
	<u>TJKM*</u>	<u>SFDPW**</u>	
Light	100		1500
Moderate	100-200	300	1380
Moderately High	200-500	300-600	1150
Very High	500	600	920

* The TJKM figures were used for calculations in this Supplement.

**San Francisco Department of Public Works levels are from a DPW worksheet, "Traffic Signal Priority Calculations, Pedestrian Volume Ranges."

TABLE C-5: VEHICULAR LEVELS OF SERVICE

LEVEL OF SERVICE	DESCRIPTION	V/C RATIO
A	Free Flow (relatively). If signalized, conditions are such that no approach phase is fully utilized by traffic and no vehicle waits through more than one red indication. Very slight or no delay.	0.00 - 0.60
B	Stable flow. If signalized, an occasional approach phase is fully utilized; vehicle platoons are formed. This level is suitable operation for rural design purposes. Slight delay.	0.61 - 0.70
C	Stable flow or operation. If signalized, drivers occasionally may have to wait through more than one red indication. This level is suitable operation for urban design purposes. Acceptable delay.	0.71 - 0.80
D	Approaching unstable flow or operation; queues develop, but are quickly cleared. Tolerable delay.	0.81 - 0.90
E	Unstable flow or operation; the intersection has reached ultimate capacity; this condition is not uncommon in peak hours. Congestion and intolerable delay.	0.91 - 1.00
F	Forced flow or operation. Volumes passing through the intersection decrease and the intersection operates below capacity. Jammed. Queues develop that may block upstream intersections.	1.00+

SOURCE: Highway Capacity Manual, HRB Special Report 87

Cumulative Development Analysis

The buildings which were elements of the cumulative development are in or near the Downtown Business district and are listed below by their Office of Environmental Review EIR file number and name.

74.164 Pacific Bldg. III - Apparel Mart
77.256 Levi's Plaza
78.27 101 California
78.207 Federal Reserve Bank
78.298 1 Montgomery: Crocker Tower
78.334 1 Sansome
78.413 150 Spear Street
No EE Embarcadero 4
79.57 DAON Building (Battery & Sacramento)
79.169 The Pacific Lumber Bldg. (Washington & Sansome)
79.178 456 Montgomery
79.196 315 Howard
78.61 Pacific Gateway
80.26 101 Montgomery*
80.268 Five Fremont Center*
79.236 101 Mission*
80.171 Hotel Ramada*
79.257 Tower II, Hilton Hotel*
79.283 Holiday Inn*
80.57 25 Jessie St. *
80.355 One New Montgomery Place PDEIR*
80.339 San Francisco Federal Savings Building DEIR*
80.296 Bank of Canton Headquarters Building DEIR*
81.549E 1155 Market St. *
81.61 135 Main St.*
81.183E Mission/Main PDEIR*
80.276 China Basin Building*
80.349 Spear/Main Building*
81.104E Montgomery/Washington Building*
81.18 Second and Folsom Project DEIR*
81.461E 333 Bush St. Building PDEIR*

*Not on Attachment 2 to Guidelines, included at request of Office of Environmental Review, San Francisco Department of City Planning.

As downtown San Francisco is currently experiencing an increase in office building floor area, the Department of City Planning has initiated an analysis of the cumulative traffic impact of 31 buildings in the vicinity of the proposed project which are proposed to be occupied after 1981, or which are now under environmental review. Thirteen of the buildings are included in Attachment 2 of the Guidelines for Environmental Impact Review and 18 buildings were analyzed at the request of the Office of Environmental Review.

Transit. Afternoon peak-hour riderships, shown in Tables C-6 and C-7, were projected from 1981 to 1988 levels by use of a growth factor for each transit agency used to account for growth from developments not considered in the

TABLE C-6: EXISTING PEAK-HOUR TRANSIT RIDERSHIPS AND CAPACITIES
(Selected Routes;* Peak Direction Only)

	Riders	Vehicles	Capacity +		Load Factor +		Peak
			Seated	Total	Seated	Total	
Muni	28,480		23,840	35,760	1.19	0.80	p.m.
BART:							
Transbay	13,055	137**	9,880	14,800	1.32	0.88	p.m.
Westbay	5,990	88**	6,340	9,500	0.94	0.63	p.m.
A-C Transit	9,130	199	9,990	12,490	0.91	0.73	p.m.
SamTrans	970	18	850	1,060	1.15	0.91	p.m.
So. Pacific RR	4,567	9***	11,000	11,000	0.42	0.42	p.m.
Golden Gate Transit:							
Motor Coach	5,050	122	5,470	6,710	0.92	0.75	a.m.
Ferry	1,070	3	1,410	2,075	0.75	0.52	p.m.

* Muni: 1, 1X, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 14, 14GL, 14X, 15, 16X, 17X, 19, 21, 25, 27, 30, 30X 31, 31X, 32, 38, 38L, 38AX, 38BX, 40X, 42, 45, 47, 55, 66, 71, 72, 80X, J, K, N (October 1980)

SamTrans: 7F, 7B, 5M, 7R;

A-C Transit: A, B, BX, C, CH/CB, E, EX, F, FSG/FX, G, H, K, KH, L, LX, N, NX, O, OX, R/RH, RD/RF/RCV, S, SW, V, W, Y.

** BART data is on a per car basis. Sixteen trains operate in the peak hour. Eastbound: 7 Concord trains (average 10 cars per train); 5 Fremont trains (average 10 cars per train); and 4 Richmond trains (average 5 cars per train), Westbound: 12 trains.

*** Number of trains assuming 10 cars per train to reflect available rolling stock. Actual number of cars per train is less than 10.

+ Load factor is calculated by dividing ridership by seated or total seated-and-standing capacity. Load factor represents the amount of capacity used. Capacity has been calculated based on the following per-vehicle capacities:

	Seated Passengers	Total Seated and Standing Passengers
BART	72	108
A-C Transit	48	60
SamTrans	47	59
Southern Pacific	100/150	100/150
Golden Gate Transit Motor Coach	45	55
Sausalito Ferry	400	575
Larkspur Ferry	510	750

TABLE C-6 SOURCE: Publicly available data was supplied by the agencies and personnel indicated below

<u>Agency</u>	<u>Data</u>	<u>Personnel</u>	<u>Date</u>
BART	Data Acquisition System Representative P.M. Peak Load Factors for July-September 1981	W. Belding Sr. Economic Analyst	17 November 1981
A-C Transit	Schedule Checks on Various Weekdays in 1981	Kay More, AC Transit	21 May 1981
SamTrans	Maximum Load Point Schedule check	TJKM Field Count	19 May 1981
Cal Trans	SPRR Passenger Counts	Elmer Hall	8 December 1981
Golden Gate Transit	Monthly Reports February 1981	A. Zahradnik Transportation Planner	25 March 1981

cumulative analysis. The cumulative ridership from the above listed projects was added to the growth in ridership thus determined to give the 1988 base ridership shown in Table 16, p. 157.

The projections were based on information gathered from each agency. For SamTrans and Southern Pacific Railroad (SPRR), SamTrans demand projections were used. Mr. L. Stueck of SamTrans supplied the demand projections for average daily and total yearly patronage for the years from 1978 to 1985 for the block of routes that include the mainline routes. A SamTrans projection of SPRR ridership from San Mateo County was also supplied. The percent increase per year for SamTrans and SPRR were calculated from these data. For Golden Gate Transit, the system-wide percent per year increase stated on p. 4-1 of the "Final EIR on Proposed Toll and Fare Increases" (dated July 1978) was used. For BART and A-C Transit the daily ridership for years 1974 through April 1978 was used to project a growth trend. The patronage data were taken from "BART Impact Project - Traffic Survey Series" A-43 to A-50 (October 1974 to April 1978). A total percent increase from 1980 to 1984 was calculated for A-C and BART separately. The growth factors thus derived for the period 1980-1984 were 2.2% for BART (both transbay and westbay), 0% for

A-C Transit, 2.6% for SamTrans, 2.4% for Southern Pacific, and 3.3% for Golden Gate Transit (Motor and Ferry). Growth of 1% total for 1984-1988 was assumed. Worksheets showing the derivations of these percentages are on file with the Department of City Planning, Office of Environmental Review, 45 Hyde St.

Traffic. The 1981 base traffic volumes were expanded to 1988 through use of a growth factor of 0.2% per year (the overall 1% per year adjusted for the cumulative development) which was assumed to account for traffic growth from developments not considered in the analysis. Information on the amount of traffic generated by each "cumulative" project (see list in previous section) that would affect the streets in the Financial District was derived from the EIR or special traffic report on that project. The cumulative traffic from the analyzed projects was added to the traffic derived using the growth factor to give the 1988 base traffic volumes.

FOOTNOTES

/1/ Transportation Research Board, Transportation Research Circulation No. 212, "Interim Materials on Highway Capacity", January, 1980.

/2/ Discussion with S. Shoaf, Traffic Engineer, Department of Public Works, Bureau of Traffic Engineering, City and County of San Francisco.

APPENDIX D: TRANSIT SYSTEM CAPACITY RESTRICTIONS

The BART system is currently attaining its design capacity (i.e., all lines are in operation on "short" headways). BART is limited by station platform lengths, train turnaround times, in-station storage of trains at Daly City and by its central computer control. Adding more cars to the BART trains would increase per-train capacity but would also increase station dwell time as trains with more than 10 cars would have to load twice at the same platform - once for the first 10 cars and once for the remaining cars. Increased station loading (dwell) times may counteract the "short" headway operation, thus negating any increase in service realized by operating trains closer together. BART is funded by a three county sales tax and by grants from Federal and State sources. BART currently has a five-year plan as well as longer-range plans for system improvement. Any action by BART requires advance approval by the BART Board of Directors (elected), the California Public Utilities Commission (PUC) and the Metropolitan Transportation Commission (the local administrator of Federal UMTA funds).

Southern Pacific Railroad commute service has recently been acquired by CalTrans. The trains and track operation are still the property of SPRR but the operation and scheduling is funded and controlled by CalTrans. Three transit districts (SF Muni, SamTrans and Santa Clara County Transit) and the Federal UMTA are participating with CalTrans in funding the service. Any changes in service are subject to approval by all of the participants and the State PUC. SPRR commute service is constrained by similar physical limits as BART. Train turnaround times, freight windows in the schedule and station locations control the frequency of trains on the system. The SPRR station closest to the Financial District is at Fourth and Townsend Streets and is heavily dependent upon Muni service to allow train riders to reach places of work. Muni service fluctuations cause train ridership fluctuations.

SamTrans and A-C Transit are local transit districts that serve San Mateo County and Alameda - Contra Costa counties, respectively. The San Francisco commute routes are only a portion of the service the two districts provide. Currently, the demand is being met by the service. A-C Transit uses the Transbay Transit terminal for loading/unloading and does not operate on the surface streets in San Francisco. Terminal design and operation are limiting factors in the number of buses A-C Transit can operate into San Francisco each day. Planned changes for the terminal are slated to occur within the next 10 years. SamTrans operates on surface streets in San Francisco. A major factor in commute service is the potential for commute route vehicles (peak period operation) to be used on other routes off-peak, thus generating revenue-miles over the entire day. Not all of the vehicles required to meet the commuter demand are needed to provide service in other parts of the transit systems and are stored in San Francisco during mid-day period. Adding vehicles to the commute period increases the number of vehicles not being used mid-day and significantly increases operating costs.

Golden Gate Transit operates a multi-modal transit system serve Marin and Sonoma Counties. Motor coach service is provided both on a local and a commute basis. Ferry service is provided from San Francisco to Sausalito and Larkspur. A ridesharing/vanpool program is also operated. Although the

District is providing local service in Marin County the bulk of the service is commute oriented. System limitations are similar to those experienced by A-C and SamTrans. Currently, proposals to eliminate Ferry Service are being discussed. The net effect of removing the ferries would be to displace approximately 1,100 peak hour commuters.

Recent success in creating and maintaining vanpools and carpools has been observed./1/ Carpool matching agencies and vanpool start (seed) programs are currently in operation. Increases in ridesharing can have a net effect of increasing the number of persons in the commute period without increasing the number of automobiles.

FOOTNOTE

/1/ Richard H. Ribner, Ridesharing Manager, Ridesharing Division, Golden Gate Bridge Highway and Transportation District, telephone communication, January 12, 1982.

TABLE E-1: SAN FRANCISCO AIR POLLUTANT SUMMARY 1978-1980

STATIONS: 939 Ellis Street and 900 23rd Street, San Francisco*

<u>POLLUTANT:</u>	<u>STANDARD</u>	<u>1978</u>	<u>1979</u>	<u>1980*</u>
OZONE (O₃) (Oxidant)				
1-hour concentration (ppm /a/)				
Highest hourly average	(0.10) 0.12 /c,d/	0.11	0.08	0.09
Number of standard excesses		2	0	0
Expected Annual Excess/c/		0.3	0.0	0.0
CARBON MONOXIDE (CO)				
1-hour concentration (ppm)				
Highest hourly average	35 /c/	17	20	10
Number of standard excesses		0	0	0
8-hour concentration (ppm)				
Highest 8-hour average	9 /c/	9.4	13.8	7.5
Number of standard excesses		1	1	0
NITROGEN DIOXIDE (NO₂)				
1-hour concentration (ppm)				
Highest hourly average	0.25 /b/	0.30	0.16	0.17
Number of standard excesses		4	0	0
SULFUR DIOXIDE (SO₂)				
24-hour concentration (ppm)				
Highest 24-hour average	0.05 /b/	0.024	0.034	0.018
Number of standard excesses/e,f/		0	0	0
TOTAL SUSPENDED PARTICULATE (TSP)				
24-hour concentration (ug/m ³ /g/)				
Highest 24-hour average	100 /b/	128	117	173
Number of standard excesses/f/		1	1	6
Annual concentration (ug/m ³)				
Annual Geometric Mean	60 /b/	42.6	42.0	52.1
Annual standard excess		No	No	No

* The 939 Ellis Street Station was discontinued in 1980. Monitoring data collected in 1980 is from the 900 23rd Street Station. 1978 and 1979 data are from, the Ellis Street Station.

/a/ ppm: parts per million.

/b/ California standard, not to be equaled or exceeded.

/c/ National standard, not to be exceeded more than once per year (except for annual standards which are not to be exceeded).

/d/ The national ozone standard was revised from 0.08 ppm to 0.12 ppm in January 1979 and is now expressed in terms of the Expected Annual Excess, which is a three-year average of annual excesses of the 0.12 ppm value.

/e/ The sulfur dioxide standard is considered to be exceeded only if there is a concurrent excess of the state ozone or suspended particulate standards at the same station. Otherwise, the national standard of 0.14 ppm applies.

/f/ Number of observed excess days (measurements taken once every six days).

/g/ $\mu\text{g}/\text{m}^3$: micrograms per cubic meter.

SOURCE: BAAQMD, Air Pollution in the Bay Area by Station and Contaminant;
and CARB, California Air Quality Data.

The following principles could be used by the San Francisco Redevelopment Agency when reviewing the design criteria of proposed buildings for the YBC Redevelopment Project.

1. Encourage the use of insulation, efficient fireplaces, and passive solar design measures to reduce the demand for natural gas used for space heating. Examples of such measures are:
 - Orient the long axis of buildings within 20° of true east-west.
 - Maximize window area on the south sides of buildings, and minimize window and door area on the north sides.
 - Provide eaves or window overhangs, or landscape with deciduous trees adjacent to walls, to shade interiors from high summer sun yet allow penetration of low winter sun.
 - Install double-pane windows and/or install insulated draperies.
 - Install masonry floors and walls opposite south-facing windows to store solar heat.
 - Install extra insulation beyond that required by State regulations in ceilings and walls and insulate the floors over unheated spaces.
 - Locate any fireplaces entirely inside the exterior wall of the structures; do not install a natural gas outlet in the fireplace.
 - Equip any fireplaces with metal fire boxes, heat exchangers and adjustable flues, or install free-standing fireplaces or Franklin-type stoves.

It should be noted that, while these measures are applicable to all structures, residential structures would benefit most from them.

2. Encourage the use of efficient appliances and fixtures, and encourage the use of natural gas instead of electric appliances. Examples of measures are:
 - Use natural gas for space and water heating (if solar is not provided) and for ranges and laundry dryers. Install natural gas furnaces, water heaters, ranges, and laundry dryers (all with pilotless ignition) instead of electric appliances.
 - Select other installed electric appliances, such as dishwashers, disposals, and trash compactors on the basis of greatest energy efficiency.

- Locate windows and properly insulated skylights to provide natural light in frequently used work areas such as kitchen and sink areas.
 - Use openable windows where feasible.
 - Locate bathrooms to accommodate windows for ventilation (and light) instead of fans.
 - Use fluorescent lighting for all installed light fixtures in work areas (kitchens, bathrooms, etc.) and in common areas (corridors, laundry rooms, etc.).
 - The City should be requested to install sodium-vapor lamps for all street and public parking-lot lighting. Lighting should be the minimum amount necessary for public safety. Control lighting with photoelectric cells.
 - Use accurate thermostats with readings in degrees to control water heaters.
 - Locate water heaters as close as possible to the points of hot water use and insulate hot-water pipes.
 - Use accurate clock-operated thermostats with day and night settings to control space heating.
3. Discourage use of appliances and fixtures which are wasteful of energy. Examples are:
- Electric resistance "spot" heaters in bathrooms.
 - Infrared warmer lights in food preparation or bathroom areas.
 - Infrared heaters for exterior restaurant eating areas (a combination of wind protection and passive solar heating system should be used).
 - Architectural or exterior display lighting.
 - Escalators to provide access between floors.
4. Encourage the use of public transit and the recycling of materials. Examples include:
- Coordinate with S.F. Muni to construct passenger shelters at appropriate points in the project area. Provide for safety and convenience of passengers' access to shelters.
 - Provide storage areas in all structures for recyclable materials (glass, cans, newspapers) to encourage recycling.

TYPE OF LAND USE	ESTIMATING FACTORS ¹	MAIN PROGRAM		ALTERNATIVE A		ALTERNATIVE B		ALTERNATIVE C ¹²		ALTERNATIVE D ¹²	
		Unit (Sq. Ft.) ²	Gallons/ Day	Unit (Sq. Ft.) ²	Gallons/ Day	Unit (Sq. Ft.) ²	Gallons/ Day	Unit (Sq. Ft.) ²	Gallons/ Day	Unit (Sq. Ft.) ²	Gallons/ Day
Commercial Entertainment	100 gal/1000 sq. ft./day	255,000	25,500	400,000	40,000	--	--	--	--	--	--
Convention Facility: Visitors Employees	5 gal/visitor/day ³ 20 gal/employee/day	2,700/day ⁴ 800/day	13,500 16,000	2,700/day ⁴ 800/day	13,500 16,000	2,700/day ⁴ 800/day	13,500 16,000	--	--	--	--
Community Service (Institutional)	1,000 students (during 1 hr. period) X 35 gpcd ⁵ and other, 100 gal/1000 sq. ft./day	119,600	35,035								
Cultural	100 gal/1000 sq. ft./day	340,000	34,000								
Downtown Support Service	100 gal/1000 sq. ft./day	10,500	1,050	--	--	--	--	--	--	6,336,584	633,660
Exhibit and Ballroom	100 gal/1000 sq. ft./day	100,000	10,000								
Hotel Rooms	200 gal/room/day ⁶	2,200 rooms	440,000	700 rooms	140,000	--	--	--	--	--	--
Light Industry	100 gal/1000 sq. ft./day	137,300	13,730	1,077,450	107,700	342,875	34,280	359,378	35,900	1,551,704	155,170
Market Rate Dwelling Units	200 gal/DU/day ⁶	1,970 DUs	394,000	50 DUs	10,000	650 DUs	130,000	1,000 DUs	200,000	--	--
Office	125 gal/1000 sq. ft./day	4,072,000	509,000	6,214,450	776,750	2,631,625	329,000	1,302,300	195,300 ⁷	3,317,823	497,700 ⁷
Retail Commercial	200 gal/1000 sq. ft./day	496,900	99,380	676,550	135,400	341,075	68,200				
Pedestrian Concourse (urban open space)	30 gal/1000 sq. ft./day ⁸	170,000	5,100	163,220	4,890	80,720	2,430	80,720	2,430	--	--
Public Park	60 gal/1000 sq. ft./day ⁸	355,000	21,300	450,000	27,000	--	--	908,600	54,516	--	--
Rec/Entertainment Park: Visitors Grounds	5 gal/visitor/day 60 gal/1000 sq. ft./day ⁸	--	--	--	--	17,800v/day ⁹	89,000 756,800	--	--	--	--
Subsidized Dwelling Units	200 gal/DU/day ⁶	900 DUs	180,000	888 DUs	177,600	1,188 DUs	237,600	1,188 DUs	237,600	888 DUs	176,600
TOTAL GALLONS PER DAY (mgd):10			1.80 mgd		1.45 mgd		0.97 mgd		0.73 mgd		1.48 mgd

1 Unless otherwise noted, taken from: Brown and Caldwell, Consulting Engineers, Report on Wastewater Loading from Selected Redevelopment Areas, February 1972.

2 Square feet unless otherwise noted.

3 Estimating factor of 5 gallons per visitor per day provided by convention center architects.

4 High annual attendance figure of 985,000 visitors based on total annual 1976 attendance of 973,000 at similar Los Angeles Convention Center and estimated convention use only attendance figure of 475,000 in 1988 provided by R. Sullivan, General Manager, San Francisco Visitors and Convention Bureau, telephone communication, August 22, 1977.

5 Joint Committee of the American Society of Civil Engineers and the Water Pollution Control Federation, Design and Construction of Sanitary and Storm Sewers, 1969.

6 Metcalf and Eddy, Wastewater Engineering: Collection, Treatment, Disposal, McGraw-Hill, 1972.

7 Combined office - retail commercial consumption computed at 150 gal/1,000 sq. ft./day.

8 Park irrigation calculated at 3 acre-feet of water per acre each year; concourse irrigation calculated at one-half this amount.

9 Based on high annual recreation/entertainment park attendance of 6,400,000 people estimated by R. Gryzlec, letter dated July 26, 1977.

10 Million gallons per day.

11 Dwelling unit figures for Alternatives are corrected to show 278 fewer than in YBC FEIR.

12 Alternatives C and D do not include existing convention center.

SOURCE: Environmental Science Associates, Inc.

TABLE F-2: CALCULATIONS FOR CONSUMPTION OF WATER BY USE IN YBC: 1988 (Main Program and Variants)

TYPE OF LAND USE	ESTIMATING FACTORS ¹	MAIN PROGRAM WITH VARIANTS					
		MAIN PROGRAM		A. Central Block 1		B. Central Block 2	
		Unit (Sq. Ft.) ²	Gallons/ Day	Unit (Sq. Ft.) ²	Gallons/ Day	Unit (Sq. Ft.) ²	Gallons/ Day
Commercial Entertain- ment	100 gal/1000 sq. ft./day	255,000	25,500	255,000	25,500	255,000	25,500
Convention Facility: Visitors	5 gal/visitor/day ³	2,700/day ⁴	13,500	2,700/day ⁴	13,500	2,700/day ⁴	13,500
Employees	20 gal/employee/day	800/day	16,000	800/day	16,000	800/day	16,000
Community Service (Institutional)	1,000 students (during 1 hr. period) x 35 gpcd ⁵ and other, 100 gal/1000 sq. ft./day	119,600	35,035	119,600	35,035	119,600	35,035
Cultural	100 gal/1000 sq. ft./day	340,000	34,000	340,000	34,000	340,000	34,000
Downtown Support Service	100 gal/1000 sq. ft./day	10,500	1,050	10,500	1,050	10,500	1,050
Exhibit and Ballroom	100 gal/1000 sq. ft./day	100,000	10,000	100,000	10,000	100,000	10,000
Hotel Rooms	200 gal/room/day ⁶	2,200 rooms	440,000	2,200 rooms	440,000	2,200 rooms	440,000
Light Industry	100 gal/1000 sq. ft./day	137,300	13,730	137,300	13,730	137,300	13,730
Market Rate Dwelling Units	200 gal/OU/day ⁶	1,970 OUs	394,000	1,670 OUs	334,000	1,470 OUs	294,000
Office	125 gal/1000 sq. ft./day	4,072,000	509,000	4,472,000	557,000	4,072,000	509,000
Pedestrian Concourse	30 gal/1000 sq. ft./day	170,000	5,100	170,000	5,100	170,000	5,100
Public Park or Plaza	60 gal/1000 sq. ft./day	355,000	21,300	355,000	21,300	355,000	21,300
Retail Commercial	200 gal/1000 sq. ft./day	496,900	99,400	586,900	117,400	496,900	99,400
Subsidized Dwelling Units	200 gal/OU/day ⁶	900 OUs	180,000	900 OUs	180,000	900 OUs	180,000
TOTAL GALLONS PER DAY (mgd): ⁷			1.80 mgd		1.81 mgd		1.70 mgd
							1.83 mgd

1 Unless otherwise noted, taken from: Brown and Caldwell, Consulting Engineers, Report on Wastewater Loading from Selected Redevelopment Areas, February 1972.

2 Square feet unless otherwise noted.

3 Estimating factor of 5 gallons per visitor per day provided by convention center architects.

4 High annual attendance figure of 985,000 visitors based on total annual 1976 attendance of 973,000 at similar Los Angeles Convention Center and estimated convention use only attendance figure of 475,000 in 1988 provided by R. Sullivan, General Manager, San Francisco Visitors and Convention Bureau, telephone communication, August 22, 1977.

5 Joint Committee of the American Society of Civil Engineers and the Water Pollution Control Federation, Design and Construction of Sanitary and Storm Sewers, 1969.

6 Metcalf and Eddy, Wastewater Engineering: Collection, Treatment, Disposal, McGraw-Hill, 1972.

7 Million gallons per day.

SOURCE: Environmental Science Associates, Inc.

APPENDIX G: ARCHITECTURAL EVALUATION SYSTEMS

The architectural ratings discussed in the text of this report represent the results of two separate architectural surveys.

SAN FRANCISCO DEPARTMENT OF CITY PLANNING SURVEY

Between 1974 and 1976, the San Francisco Department of City Planning conducted a citywide inventory of architecturally significant buildings. An advisory review committee of architects and architectural historians assisted in the final determination of ratings for the 10,000 buildings which were entered in an unpublished 60-volume record of the inventory. The rated buildings have been represented on a set of color-coded maps which identify the location and relative significance of each building surveyed. The maps are available for public inspection at the Department of City Planning.

The inventory assessed the architectural significance of the surveyed structures from the standpoint of overall design and particular design features. Both contemporary and older buildings were included, but historical associations were not considered. Each building was numerically rated according to its overall architectural significance. The ratings ranged from a low of "0" to a high of "5". Factors considered included architectural significance, urban design context, and overall environmental significance. The architectural survey resulted in a listing of the best 10% of San Francisco's buildings. In the estimation of the inventory participants, buildings rated "3" or better represent approximately the best 2% of the City's architecture.

HERITAGE SURVEY

More recently, the Foundation for San Francisco's Architectural Heritage, through its consultants, Charles Hall Page & Associates, Inc., conducted an architectural and historical survey of all Downtown structures. In 1979, the inventory results were published in the book Splendid Survivors. Criteria considered in rating the buildings included Architectural Significance, Historical/Cultural Significance, Environmental Significance and Negative Alterations. Summary ratings from "A" to "D" were then assigned to each building on the basis of these scores. The summary ratings indicate the following:

- A. Highest Importance. Individually, these buildings are the most important buildings in downtown San Francisco. All "A" group buildings are eligible for the National Register and are of highest priority for City Landmark status.

- B. Major Importance. This group includes buildings which are of individual importance by virtue of architectural, historical, and environmental criteria. "B" group buildings are eligible for the National Register and are of secondary priority for City Landmark status.
- C. Contextual Importance. Buildings which are distinguished by their scale, materials, compositional treatment, cornice and other features are included in this group. Many "C" group buildings may be eligible for the National Register as part of historic districts.
- D. Minor or No Importance. Buildings in this group are insignificant examples of architecture. Most "D" group buildings are "sites of opportunity" for development.

ARCHITECTURALLY AND/OR HISTORICALLY IMPORTANT BUILDINGS IN THE DOWNTOWN

Section 1011 of Article 10 of the City Planning Code authorizes the City Planning Commission to approve a list of structures that have historical and architectural merit, but have not been designated as landmarks. The purpose of such a list is to encourage preservation of structures of architectural and historic merit, without subjecting them to the controls imposed on designated landmarks.

In May 1978, the Planning Commission directed the Landmarks Preservation Advisory Board to prepare a list of such structures for the Commission to consider. The Landmarks Board presented a list in September of the best 300 buildings in the Downtown area, including all buildings rated A or B in the Heritage survey, Splendid Survivors, and any other buildings given high ratings in the Department of City Planning 1976 Architectural Inventory. The Planning Commission held two public hearing, in September 1979 and January 1980, and adopted the Listing of Architecturally and/or Historically Important Buildings in the Downtown on May 29, 1980 (Resolution 8600).

